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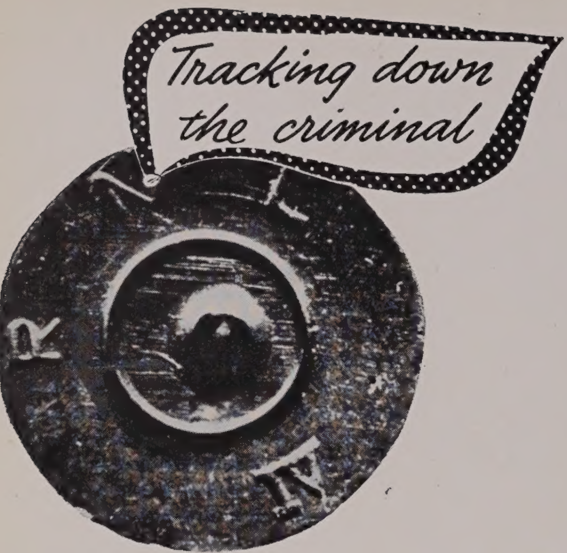

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Under Sail to the Azores

by ERIC C. HISCOCK

Mr Hiscock's Wanderer II *is the smallest vessel ever to have sailed from England to the Azores; and his view of the waters between was therefore close to that of the early Portuguese navigators. Formerly Editor of* The Yachtsman, *he is the author of* Cruising Under Sail, *a standard textbook*

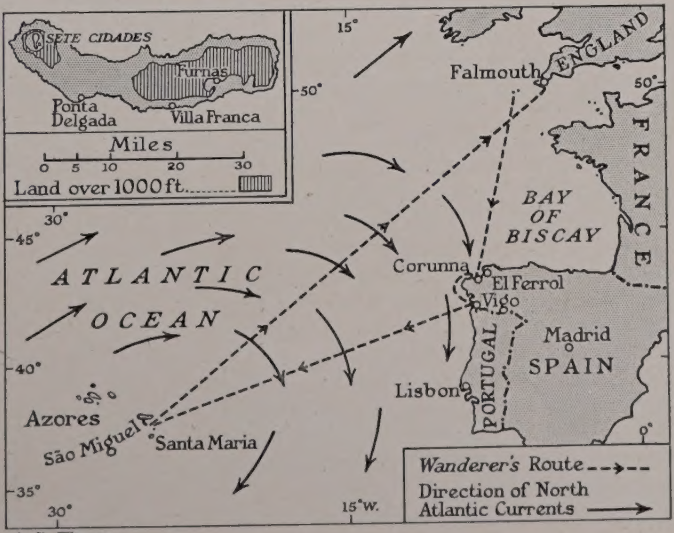
My wife and I do nearly all our travelling in our own small sailing yacht, and that, we find, is one of the most satisfactory methods of combining travel and adventure. The practical business of getting from one place to another under sail, of handling our vessel in all weather conditions, of navigating her for days on end out of sight of land, of making a landfall and piloting her through the off-lying dangers and into the chosen port—all are spiced with moments of excitement and adventure. But it is on arrival in a foreign land that one of the greatest advantages of our method becomes apparent: our mobile, floating home serves as our headquarters so that we are independent of hotels or lodgings and our living expenses are small.

Our method of travel is, of course, particularly suited to the exploration of islands, but as we had already visited most of those which lie in British and French waters, we felt it necessary to turn our attention to a more distant island last summer, and we chose São Miguel, the largest and most important of the Azores. Apart from the physical attractions of that island, of which we had heard enough to whet our appetites, there were two reasons for our choice: as São Miguel lies only 1200 miles west-south-west from the Lizard we would be able to carry sufficient food and water for the two of us for the trip even in our small craft, and by following the track of the fruiters we would stand a good chance of having favourable winds for the greater part of both the outward and homeward passages.

At one time there were 350 sailing vessels engaged in the orange trade between São Miguel and British ports; most of them were topsail schooners, but a few were brigs. In the summer, if they met a headwind on clearing the Channel they sailed on the starboard tack towards Spain where, in the latitude of Finisterre, they usually found the beginning of the Portuguese trade wind which often carried them for the remaining 900 miles out to São Miguel. The trade wind would be northerly at first, becoming more easterly as the island was approached. On the return passage, if the wind was east or north-east they stood away with it on the starboard side perhaps for 200 or 300 miles to the northward until they found a west or south-west wind to bring them home.

We proposed to visit Spain on the outward voyage, and on leaving the Isles of Scilly late in May were fortunate in finding a fair wind to carry us right across the Bay of Biscay straight to Corunna in four-and-a-half days. We spent three weeks exploring the many fine inlets and the picturesque but often poverty-stricken fishing villages on the Spanish coast between the naval base of El Ferrol and the commercial port of Vigo, and left the latter place in the third week of June bound for São Miguel, distant some 850 miles to the westward.

According to the meteorological statistics we should have had 81 per cent of north or north-east winds to hurry us on our way; but by one of those unaccountable freaks of nature with which the sailing man is occasionally confronted, the Portuguese trade wind was at that time non-existent, and we had a large proportion of winds from be-



A. J. Thornton

Eric C. Hiscock

The beginning of a "hard blow". During her voyage from Spain to the Azores, the twenty-four-foot Wanderer *encountered two gales, an exhausting and far from enjoyable experience in a small yacht*

tween north-west and south-west. A sailing vessel as small as ours (*Wanderer II* is only twenty-four feet long and she has no auxiliary engine) cannot make very satisfactory progress against a contrary wind, and so we were at sea for thirteen days.

On one day only was the wind astern of us, and then it blew much too hard, force 9 on the Beaufort scale (strong gale), soon raising a steep and heavily crested sea before which we ran without a stitch of sail set. No-one who has encountered a hard blow at sea in a small yacht can honestly say that he has enjoyed the experience. As the wind increases in strength in each succeeding squall and the noise in the rigging rises note by note until it becomes an angry, high-pitched scream, and as each great sea rolling down on the little vessel from out of the murk astern grows higher and steeper, the crew cannot help but feel very small and nothing worth in the face of such tremendous elemental forces. Steering required concentration, for it was necessary to keep the yacht exactly stern on to each overtaking sea or she might have broached-to with serious consequences, and we found it possible to take spells at the helm of only one hour at a time. The gale reached its greatest force at noon, and by then, having realized how well and confidently *Wanderer* was behaving and that apparently she was not going to drown us after all, we began to derive some pleasure from our swooping, buoyant progress, tired and wet though we were; and indeed it was heartening after the days of headwinds to be moving fast in the right direction. By evening the gale, having blown for ten hours, began to moderate, and as the pall of heavy grey cloud broke up to reveal wide patches of pale blue sky and the lulls between the squalls grew longer and more frequent, we both felt as though a great weight had been lifted from us.

As the wind eased, we made sail, and by noon on the following day conditions were perfect with only a long and easy swell to

Eric C. Hisc

Nobrega

(Above) *On the twelfth day at sea the scents of pine-trees and flowers heralded land; several hours later a landfall was made at the east end of São Miguel, where a range of mountain peaks rises 4000 feet above the villages clustered at the edge of the sea.* (Right) *It was night when* Wanderer *arrived at Ponta Delgada, the capital of the Azores. She anchored within the breakwater forming the harbour, in unfamiliar calm after the long rough passage*

obrega

Black-and-white pavement mosaics are a common feature not only of Ponta Delgada but of many other Portuguese towns

remind us of what had passed. But two days later we encountered a second gale, and as that one blew from the direction in which we wished to go, we had no alternative but to heave-to under very reduced sail and remain more or less where we were until it blew itself out. Although it at no time reached the strength of the previous one, mentally it was more exhausting because it lasted longer and prevented us from making any progress, and we found the ceaseless noise of the wind in the rigging and of the crests breaking against the weather side and on deck very trying during our twenty-four hours of inactivity. I gave Susan her breakfast in bed that day, and although it only consisted of boiled eggs, biscuits, marmalade and coffee, it took a long time to get ready, for so wild was the motion and so great the angle of heel that the simplest little action, such as drawing a mug of water from the tap, became a major undertaking which in my weary mental and physical condition was only to be attempted after much careful thought and planning. We were indeed thankful when the wind and sea moderated sufficiently to enable us to let draw and proceed cautiously on our way.

Throughout the passage our observations of the sun and stars showed that the Portuguese and Azores currents, which form a part of the great clockwise-running system of the North Atlantic, were setting us to the south approximately twenty-five miles each day, and we had to counteract them by an alteration of the compass course.

On our twelfth day at sea, and after we had been able to smell pines and sweet-scented flowers for several hours, we made a landfall. At first only the east end of São Miguel was visible, and that faintly, for the island was veiled in a pale blue mist; but as we approached more closely we were able to see what a magnificent place we had found, out there in mid-Atlantic. Mountain peaks between 3000 and 4000 feet high gave a saw-toothed contour to the skyline, and presently we could make out little groups of white houses close to the water and a patchwork of tiny fields extending up to a height of about 1000 feet. Above these was the dark green of trees to within a few hundred feet of the tops of the mountains which were of bare rock.

Although the Azores are clearly shown on the Genoese maps of the 14th century, there is no record of any discovery of them before the Portuguese settlement about the middle of the 15th century, and until then they were uninhabited. But some islands had long been reported to exist far out in the Atlantic; and if the legend of the lost land of Atlantis was ever more than a myth, the most probable situation would seem to be the Azores. It is unlikely that the ships of very early times trading in the Mediterranean and outside the straits of Gibraltar could do more than drive away to leeward under bare poles before a gale, just as we did; and if bad weather persisted for a fortnight, as indeed it could do in the winter, might it not have been possible for one of these ancient ships eventually and quite by chance to have found a safe anchorage at São Miguel? The beautiful island, covered as it previously was with giant cedars, must have seemed a paradise to the storm-tossed and ocean-weary mariners. Eventually a westerly wind would have sprung up to carry the ship back to her home port where, no doubt, an account of the island must have created quite a stir, and over a period of time tradition would have embellished the story.

As the entire group, comprising nine islands, extends from east to west a distance of only 300 miles, and as some of the islands are visible from up the mountains of their neighbours, it seems a little strange that from the time when Diego de Sevill, Prince Henry the Navigator's pilot, landed on the island of Santa Maria about 1430, it took twenty years for the remainder of the group to be discovered. (With the discovery of São Miguel in 1444, the slang name of "Azores" or "Hawks" began to take the place of the earlier term "Western" islands, from the swarms of hawks that were then its only vertebrate tenants.) Also, one might have thought that having got so far some adventurer would have wished to see what lay farther to the westward; but it was not until a generation later that Columbus reached the West Indies. Apart from the period 1581-1640, when the group was under Spanish domination, it has remained under Portuguese rule.

We reached an anchorage in the port of Ponta Delgada, which is on the southern shore and is formed by a massive breakwater nearly a mile long, during the night. The yacht seemed curiously still and silent after we had turned into our bunks and, accustomed as we were by then to broken sleep, we were astir soon after dawn when we hoisted the international code flag "Q", which means "My vessel is healthy and I request free *pratique*". Within a few minutes a smartly handled motor-launch bearing the pilot came alongside.

"Where are you from?" he asked in excellent English.

"Vigo", I replied.

"Are you well?"

"Yes."

"Then pull that yellow flag down."

That was the only official interest taken in us, after which the pilot towed us to the best berth in the harbour. No-one wanted to look at our Spanish Bill of Health, and we were not asked to pay any harbour or other dues. A friendly longshoreman with a charming smile announced that his wife was a "laundry" and whisked away all our dirty, salt-stained clothes which he returned next day immaculately clean, crisply ironed and with all the holes repaired.

Commander Davis, the British Vice-Consul, kindly lent us his chauffeur-driven car and an interpreter so that we might do our shopping without difficulty, and he and Mrs Davis gave a cocktail party in our honour where we met most of the island celebrities and booked up enough social engagements to keep us busy for many days. The Portuguese entertained us most hospitably and lavishly, and they all seemed delighted to remember that Britain is Portugal's oldest ally. Many of them came aboard *Wanderer* and showed great interest in her, for she was the smallest ocean-going vessel ever to come their way.

In the town of Ponta Delgada, where all the pavements are done in mosaics of black and white, each street having a different design, total strangers would often take off their hats, shake us gravely by the hand and air their few words of English.

"I am pleased for having the opportunity for meeting you," or:

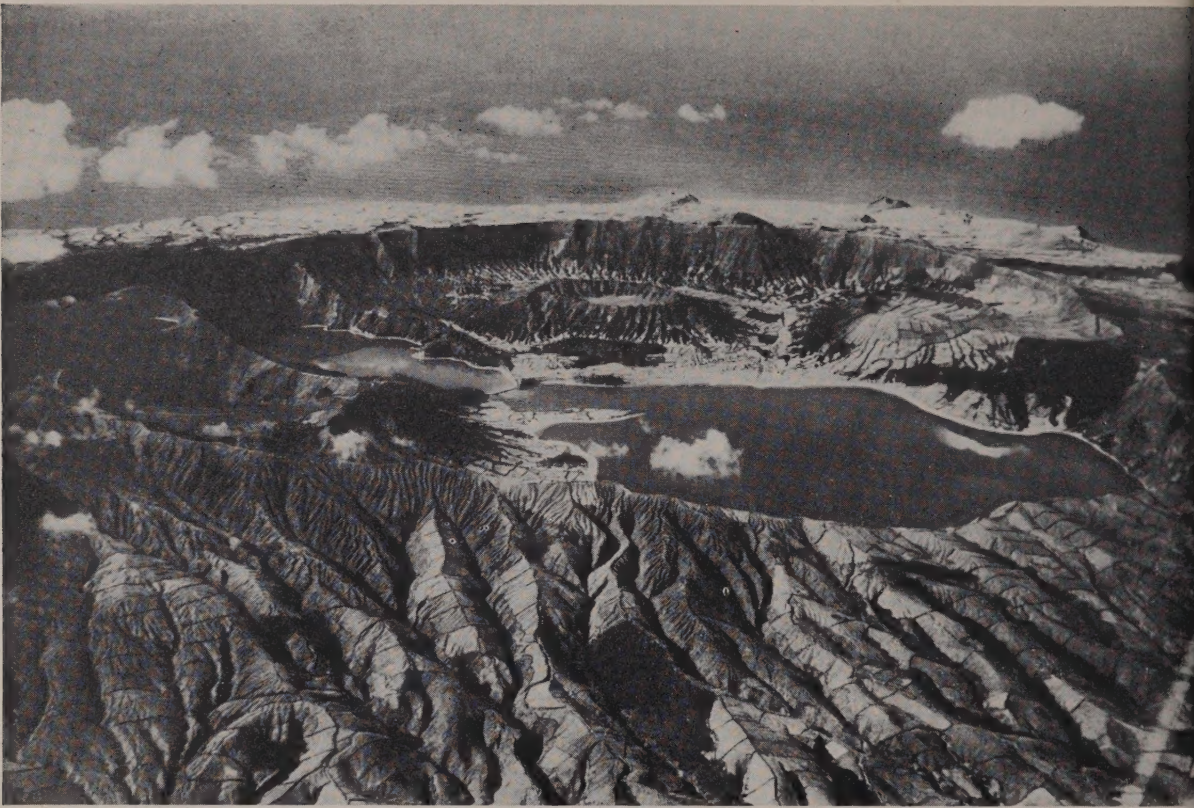
"Your ship is *piccanissimo*; you have the courage." And one small boy, having no English, had learnt by heart a complete little piece all in French; it was highly complimentary and rather embarrassing.

One day the Captain of the Port saw us rowing ashore in our small collapsible dinghy. He met us at the landing-place and said very sternly:

"That little boat, she is not safe. You must use my boat. Hoist the pilot signal and she will come."

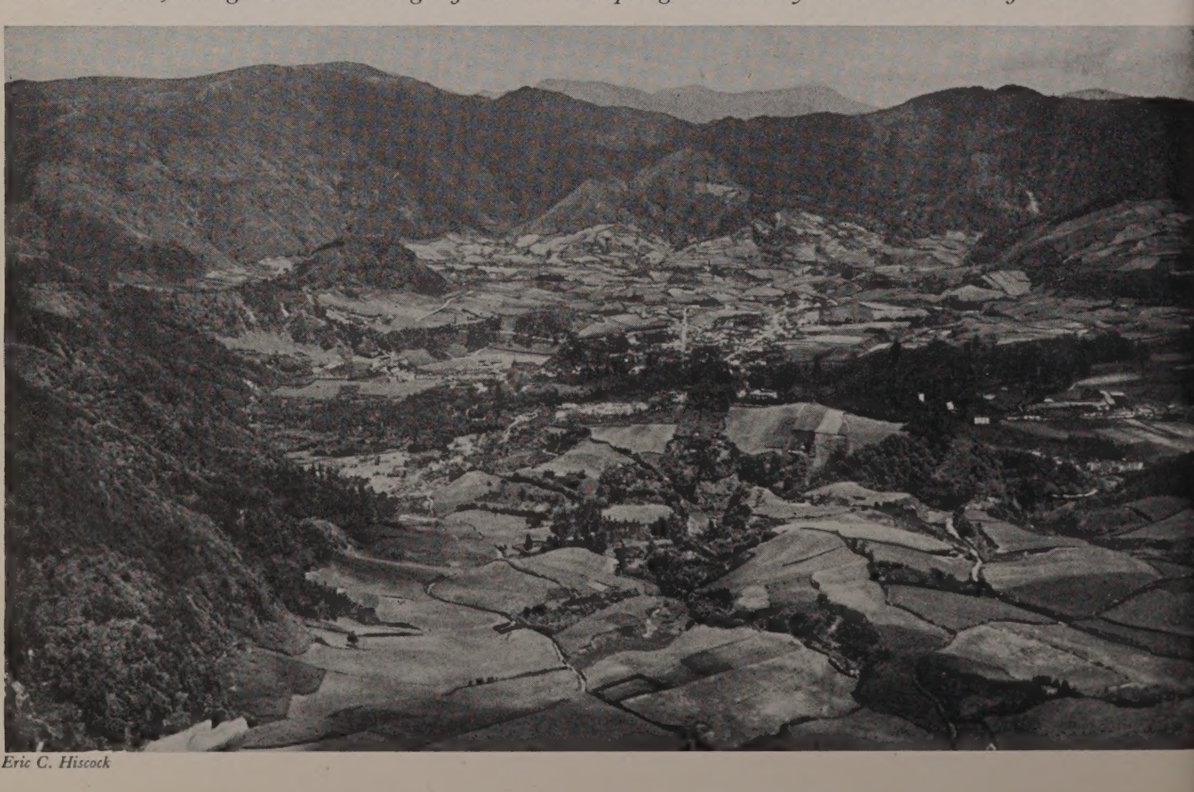
So the next time we had occasion to go ashore we did hoist the pilot signal just to see what would happen, and to our amazement a powerful motor-launch considerably longer than *Wanderer* and with a crew of four bluejackets and a petty officer instantly came alongside.

São Miguel, which is thirty-five miles long and four to eight miles wide, is, like the rest of the Azores, volcanic in origin. It has a big volcanic eruption on an average about once in every fifty years, and the town of Villa Franca, which used to be the capital, has twice been destroyed. In 1811 an island was upheaved to a height of 210 feet near the western end of São Miguel and disappeared

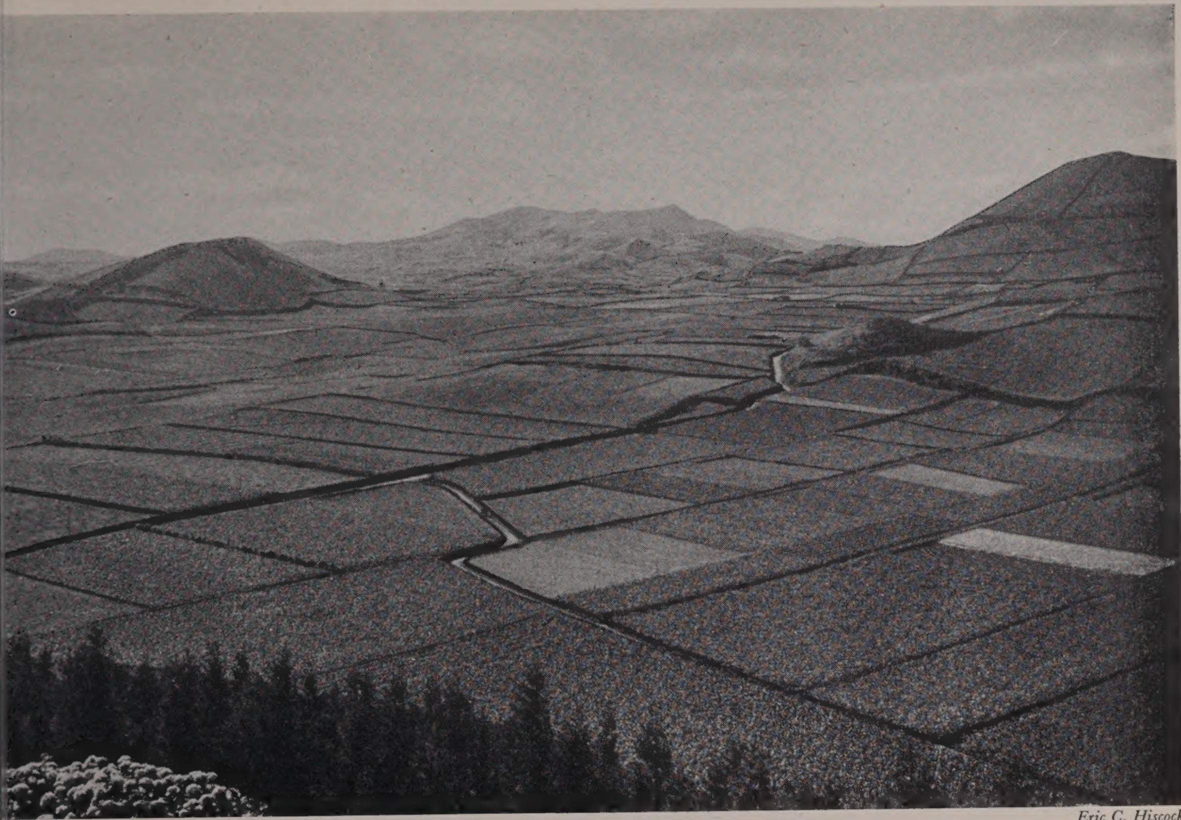


Nobrega

The Azores are volcanic in origin. (Above) *The Caldeira das Sete Cidades, a crater in the west of São Miguel. Of its two connected lakes, one always remains blue, the other green.* (Below) *Furnas valley is also an 'extinct' crater; though near the village of Furnas the springs continually emit hot blasts of steam and water*



Eric C. Hiscock



Eric C. Hiscock

Miguel has much arable land and is more intensely cultivated than any other island in the Azores, the soil n producing four crops a year in such an equable climate; but it is over-populated and the patchwork of e fields denotes the high value of land. (Below) *Hydrangea hedges border the roads and even the fields*

Eric C. Hiscock

(Left) *Tobacco plants ripening on one of the many small plantations, most of which are in the centre of São Miguel, near Ponta Delgada and on the north coast. Very strong, the tobacco is mostly consumed locally*

brega

(Right) *Pineapples are grown extensively in hot-houses in São Miguel, in the vicinity of Ponta Delgada and Villa Franca. An average of 120,000 a month are exported during the six-month season and they are very highly esteemed by connoisseurs*

Nobrega

in 119 days; this was witnessed by H.M.S. *Sabrina*. In Furnas valley, which is more than a thousand feet above sea level, subterranean fires seem to be by no means extinct. There strong jets of steam issue from crevices in the rock, some with a roar which can be heard a considerable distance away, and in many places streams of boiling water gush out from gaps in the rock. The inhabitants regard these as safety valves and believe that a volcanic eruption is unlikely to take place so long as the hot springs function.

There are several large lakes in the craters of 'extinct' volcanos, two of the most beautiful being in the Caldeira das Sete Cidades near the west end of the island; there seven villages were destroyed in one eruption. A remarkable feature is that although these lakes are joined together, one is always blue and the other green. The best view of them is to be had from the lip of the crater, but there we had to wait some time for the clouds to roll away before we were able to catch a glimpse of the still and vividly coloured waters lying a thousand feet below us.

Although the climate is generally unsettled and humid it is equable and healthy. There is never any frost and the changes in temperature are so moderate that the seasons follow one another without any marked transition. The fertility of the soil is such that three or four crops a year can often be produced, and bananas, tobacco, oranges and tea can be seen growing luxuriantly in nearly everyone's garden. The pineapple has now taken the place of the orange as the major export, and is grown entirely under glass, mossy turf from the higher parts of the mountains being used as fertilizer. The roadside hedges are almost entirely of hydrangea which was in full bloom when we were there in early July, and our eyes were dazzled by the bright blue flowers as we were driven through mile after mile of them. Unfortunately the island has now become over-populated, and in spite of the intensive cultivation, the sugar and tobacco factories and the alcohol distilleries which employ many people, there is considerable poverty and some of the children learn to beg at a very early age. There is a whaling station on the northern shore unique in that the harpoons are still aimed by hand from open

Nobre

(Above) *Gathering* espadana, *a plant with fibres resembling those of sisal or New Zealand hemp and used for similar purposes: cordage, binder twine and coarse sacking. As a raw material it is exported in considerable quantities from the Azores to Europe, where there is a ready market.* (Below) *Drying the fibres*

Nobre

rowing boats, and there are several whaling lookout posts on the higher points along the coast. The few fishing boats we saw were lateen rigged and had no engines, and most of the inter-island trading schooners have been superseded by motor-driven vessels in some respects similar to our war-time M.F.V.s.

Tourists are strangely few, perhaps because the only regular communication is by air or by the fortnightly steamer from Lisbon via Madeira. The pineapple crop is brought to England mostly by Dutch ships which have only very limited passenger accommodation. There are only two hotels, one at Ponta Delgada, the other, a modern and comfortable one, at Furnas; both were empty at the time of our visit. Though the main roads are fairly good there is very little motor traffic but there are a few buses in which pigs and other livestock share the limited room with the country folk. Market-garden produce is brought to the weekly Sunday market at Ponta Delgada in primitive ox-wagons which move slowly along the narrow, shady, cobbled streets with much rattling and squeaking of ungreased axles.

After a stay of ten days we reluctantly made preparations for the homeward voyage to Falmouth. News of our impending departure had spread around the island, and when we made our way down to the harbour after a last, farewell meal in the Vice-Consul's cool and gracious house, we found the long breakwater crowded with people who had come to see us sail. Our departure was delayed for a little while for at the last moment several boats packed with well-wishers came alongside. One brought two huge stems of green bananas, another boxes of pineapples and fresh vegetables; the Captain of the Port gave us a set of Portuguese charts of the islands, beautifully engraved and in colour, and the local photographer presented us with copies of the pictures he had taken at the cosy little dinner-party during which we were made honorary life members of the Clube Naval; finally, our good friend the pilot who was President of the Clube handed us a complimentary letter to deliver to Vice-Admiral Sir Lennon Goldsmith, Commodore of the Royal Cruising Club to which I belong.

At last, having weighed anchor and made sail, we dipped our ensign to the senior Portuguese man-of-war, and as her flag came down in reply someone aboard shouted:

"Hey, you English ! Good voyage ! "

We were then escorted out to sea by several local boats whose crews cheered and wished us good luck as they turned and headed back for the harbour where our friends still stood on the breakwater watching us out of sight. It was a heartening send-off on what was to prove a quite delightful voyage.

Fortunately the north-east wind, which should prevail at that time of year, was not in evidence, so we did not have to follow the long track of the fruit-schooners to the north. Instead, after two days of light and variable airs we picked up a good, strong south-westerly, and day after day ran at high speed in hot sunshine before a large but regular sea, and on one never-to-be-forgotten day made good from ship's noon to ship's noon (a matter of a little less than twenty-four hours because of our easting) a distance of 134 sea miles; that is probably a record for so small a vessel.

Some 200 miles from land we encountered a number of turtles measuring about eighteen inches across the shell. They allowed us to approach quite closely before submerging a few inches where, presumably, they imagined themselves to be invisible. On another occasion two whales, which we estimated at between thirty and forty feet in length, surfaced nearby and circled very slowly round *Wanderer* examining her from every angle; but much to our relief they soon lost interest in her and made off. Almost always we had with us fulmar and storm petrels. They appeared to be not in the slightest scared of us, and the storm petrels sometimes made unsuccessful attempts to land on the gaff or crosstrees; they closely examined, but never sampled, the scraps of food we threw to them. They were excellent company and a source of constant interest and entertainment. We never ceased to marvel at the flight of the fulmar petrel which is such a perfect example of effortless sailing; although the bird would perform astonishing aerobatics, swooping down into the trough between two great seas, then soaring up and over the crest so closely that as he turned his lower wing-tip would almost touch the water, he very rarely flapped or even moved his long wings.

Not until we had been at sea for nine days and were approaching the 100-fathom line, did the fair wind desert us and the weather degenerate; but even so we managed to average 100 miles a day for the whole passage of 1200 miles back to Falmouth.

Ours was only a little voyage, but for us it had been a glorious adventure, and our memories of bright blue seas, blazing sunshine, a fair wind, and the unspoilt, friendly island of São Miguel will remain with us for many a day.

Who Lives in Ceylon?

by JOHN SEYMOUR

Of the islands to which this number is largely devoted, Ceylon has the longest record of civilized occupation and, therefore, a population whose history and variety excited Mr Seymour's experienced interest (he has travelled widely in India and Africa) and will hold that of his readers

I DIDN'T want to go to Ceylon. I wanted to see Asia, and I supposed Ceylon to be just an unimportant little island, a backwater of the Asiatic mainland. I wanted to go straight to India, or Burma, or even further east.

But when you're in the army you have to go where they send you, and they sent me to Ceylon. And I had not been there half a day before I realized that I *did* want to go there, and would have missed a great deal by bypassing the place.

For Colombo itself might be called the capital of the Indian Ocean. In its harbour crazy country sailing-craft lay alongside majestic ocean-going dhows, together with the steamers of half the maritime nations of the world. Its streets were crowded with such a motley collection of people from East and West and there was such a smell of the Orient about it, and an atmosphere of exotic strangeness that I fell completely under its spell. I longed to be able to sort out the various races, colours, creeds and tongues that made up its population.

But at first it looked as though my wish was not to be granted. We had not been ashore two days before they packed us into a train and sent us up to the flat, jungled, northern part of the island where there were hardly any people at all. There we lived under bivouacs of groundsheets and spent our time training for jungle warfare.

The jungle was dense, though not impenetrable, there were no land-leeches, it was hot and dry. It was obvious why there were so few people: the climate was too dry to grow crops.

But there were some people. In our wanderings through the jungle we occasionally came across small encampments of rough bush shelters, inhabited by families of hunters who reminded me strongly of various primitive hunting tribes that I had met in Africa. These were the Veddahs. Round about the world one finds these races—the Bushmen of the Kalahari, the Pygmies of the Ituri Forests, the Wandorobo of East Africa, Australian Blackfellows, Malay Sakai—people who do not wish to change. They are hunters and collectors; they have found a way of life which suits them and a part of the world unattractive to more civilized races and they carry on their lives in much the same way today as their ancestors did thousands of years ago.

As far as one can discover, the Veddahs were the original inhabitants of Ceylon. Their axe- and arrow-heads have been found in deposits which are obviously very old and they were inhabiting the island when the first Aryan settlers arrived from the mainland of India in the 6th century B.C. They jumped then from the early Stone Age to the Iron Age, because they started trading the products of the forest for iron with the new inhabitants; but since then, to this day, they have scarcely altered their ways in the slightest detail. A few of them live in the flat jungles of the north, where I first saw them, but mostly they are to be found between the hills and the sea in the south-eastern portion of the island. They get on well enough with the rest of the population, who leave them alone, but probably as time goes on they will become absorbed. A pity, for in this age of hatred and atom-bombs it is refreshing to find people who are content to live without molesting their fellow-men.

But our jungle training took us southward, and we began to see traces of the second of the races to come to Ceylon. I shall never forget my first experience of stumbling upon some of the early Sinhalese ruins. We had been travelling all day along the straight tarred road which runs from north to south in the northern part of the island, and we halted for the night in a break in the jungle: a pleasant, park-like area; most unusual in that monotonous forest. I soon walked away from our camp to see what I could see.

I had not gone far before I came across one of the finest pieces of masonry work I had ever set eyes on: a symmetrical bathing-pool, with five stone islands in it, surrounded by courts of pillars which had obviously once supported a roof. On four sides steps led up to it, flanked with beautifully carved balustrades and guard-stones. Not only was the stonework the very summit of the mason's art, but the carving and sculpture—and the whole design of the thing—showed the most exquisite and civilized taste one could discover anywhere. I saw a lot of this early work later on, for the northern jungle is full of it; and I am prepared to give it as my opinion that this Sinhalese art, at its greatest, is as good as anything the Greeks produced.

There was a great tree-covered hill nearby, and I was amazed to discover perfectly carved and fitted granite steps, about a dozen yards in width, running from the bottom to the top of it—surely the grandest flight of stairs in the world! It seemed rather the work of giants than of men. Climbing up it I came to more ruins: a giant *dagoba*, or solid dome; a granite lion leaping for ever into a stone pool; the remains of temples and monasteries. From the top I could see, over the ocean of close-packed forest trees, the great dagobas and 'tanks' of Anuradhapura. One of the greatest of these dagobas—the Abhayagiri—when it was built was fifty feet higher than the top of St Paul's and contained twenty million cubic feet of brickwork.

The word 'tank' is used in Ceylon for an artificial lake created by a surface dam, and it was because of the great system of tanks these old people constructed that they were able to live in the dry northern jungle at all. They built what was probably the greatest system of irrigation that has ever existed. One of the tanks—they called it the "Sea" of Parakrama—covered an area of at least a hundred square miles, and the bund or dam which contained it is nine miles long. It has recently been repaired by the Ceylon government.

Owing to the discovery of an ancient chronicle called the *Mahavansa*, we know far more about the Sinhalese people of these old times than we know about our own history of the period. The *Mahavansa* was kept from generation to generation by Buddhist monks, and its reliability has been proved by comparing it with the ruins that have been found in the jungle, and also with similar works written in India.

The first Sinhalese reached the island from India in 543 B.C. bringing the art of tank construction and irrigation with them. In 307 B.C. the great Indian King Asoka sent his son Mahinda to Ceylon to convert the inhabitants to Buddhism. Mahinda met the reigning monarch—King Tissa—on the very hill on which I stood after climbing the great stairway. The Sinhalese were converted, and have remained Buddhists to this day; while the Indians on the mainland quickly reverted to Hinduism.

Two things strike one in considering this lost civilization. One is the very high state of organization which must have been necessary to have built and maintained these vast irrigation works—nothing but a strong authoritarian government of one sort or another would have sufficed—and the other is the importance of security from outside invasion. Even an attack which was ultimately repulsed might be driven far enough to breach the tank wall and starvation would be bound to follow.

And as time went on invasions began to occur. Tamil-speaking people from the mainland, Dravidians by race, (the Sinhalese are Aryans—the same race it is sometimes believed as ourselves), began to make inroads into the island. From 237 B.C. onwards the history of the island is punctuated by the story of these invasions from the mainland. The Sinhalese civilization weathered these storms until the 13th century A.D., when it was finally overwhelmed by these Tamil-speaking Hindu people. The tanks and canals were irretrievably ruined, and the survivors of the old empire were forced to migrate into the hills of the south where they could grow their rice without irrigation; but where, owing to the lack of the unifying influence of the great irrigation works, they rapidly degenerated from their former glory.

The invading Tamils were not able to reconstruct the irrigation works, so they could not continue to live over the greater part of the north, and the jungle returned. But right at the northernmost tip of Ceylon there is a piece of land—it would almost be an island but for the road and rail bridges which connect it to the mainland at Elephant Pass—where the rainfall is more regularly distributed throughout the year than it is further south and the soil is better suited to growing crops. Here many of the Tamils settled, and when I went up that way for a few days' leave I saw some of their descendants.

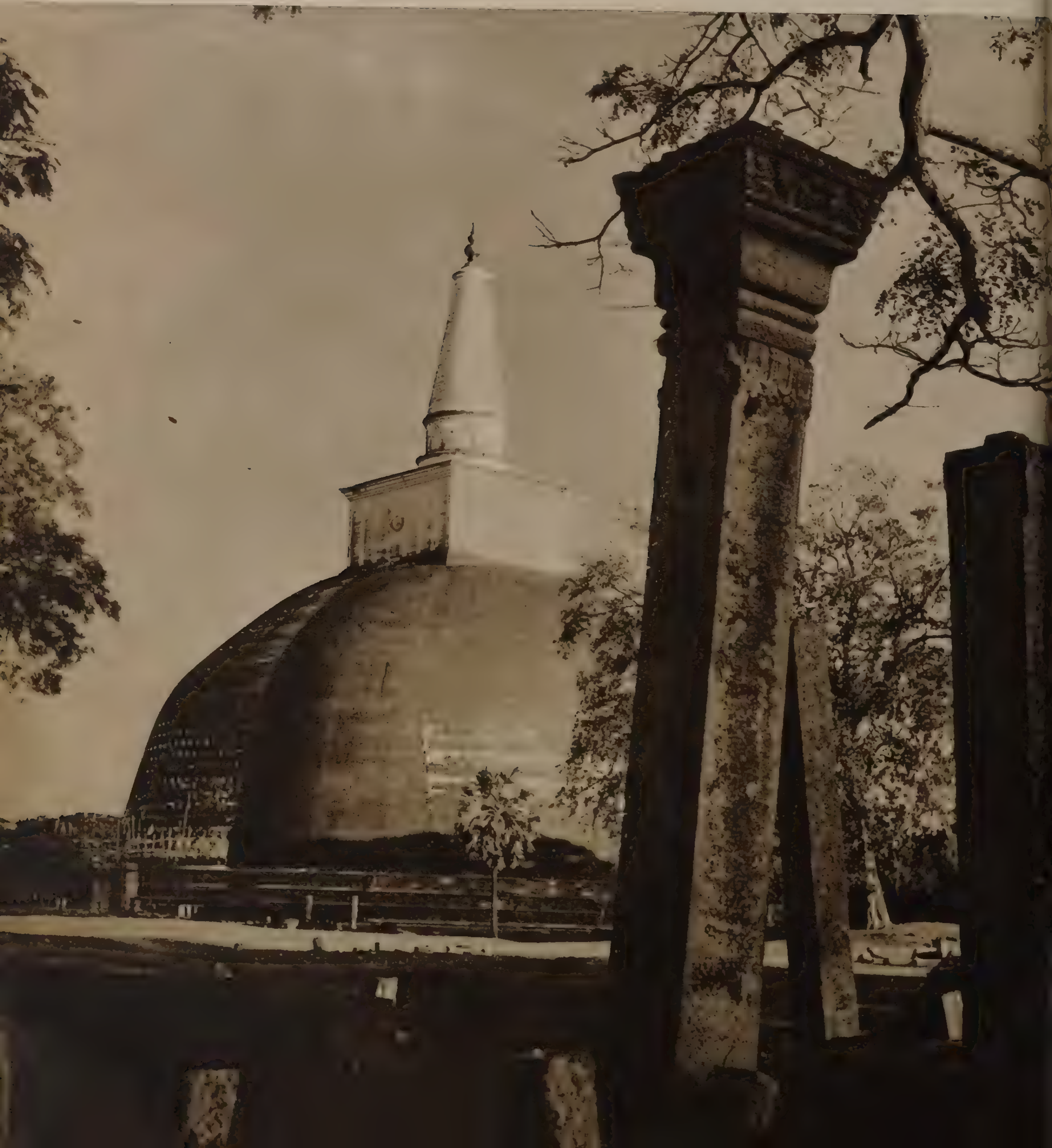
The greater part of the peninsula, or island if you like, is planted with palmyra and coconut palms and occasional paddy-fields; and the thrifty descendants of the invading Tamils live there to this day. So long have they been in Ceylon that they must be looked upon as Ceylonese; but they still speak their old language—the language of southern India—and practise the Hindu religion. These Jaffna Tamils are sometimes called the "Scotsmen of Ceylon", owing to their great industry and thrift (although from what I could see Ceylon has enough real Scotsmen

G. N. Skuce

While the inhabitants of Ceylon can rightly repudiate Bishop Heber's uncomplimentary reference to them (which was later transferred with equal infelicity to Java), the island itself certainly merits his praise as a place where "the spicy breezes blow soft" and "every prospect pleases". Here is one: at Fishery Bay, Mutwal, near Colombo, fishing-craft are drawn up on the beach under palm-trees patterned against the sky

A dagoba *at Anuradhapura, already in the 5th century* B.C. *the centre of a flourishing Sinhalese civilization and until about* A.D. *800 the capital of Ceylon. Dagobas, by origin repositories for sacred relics, are the prototypes of monuments found throughout Buddhist Asia and variously known as* stupas, topes, chortens *and* pagodas. *Two of those at Anuradhapura may be the oldest surviving buildings in the Indian peninsula*

George A. Koch

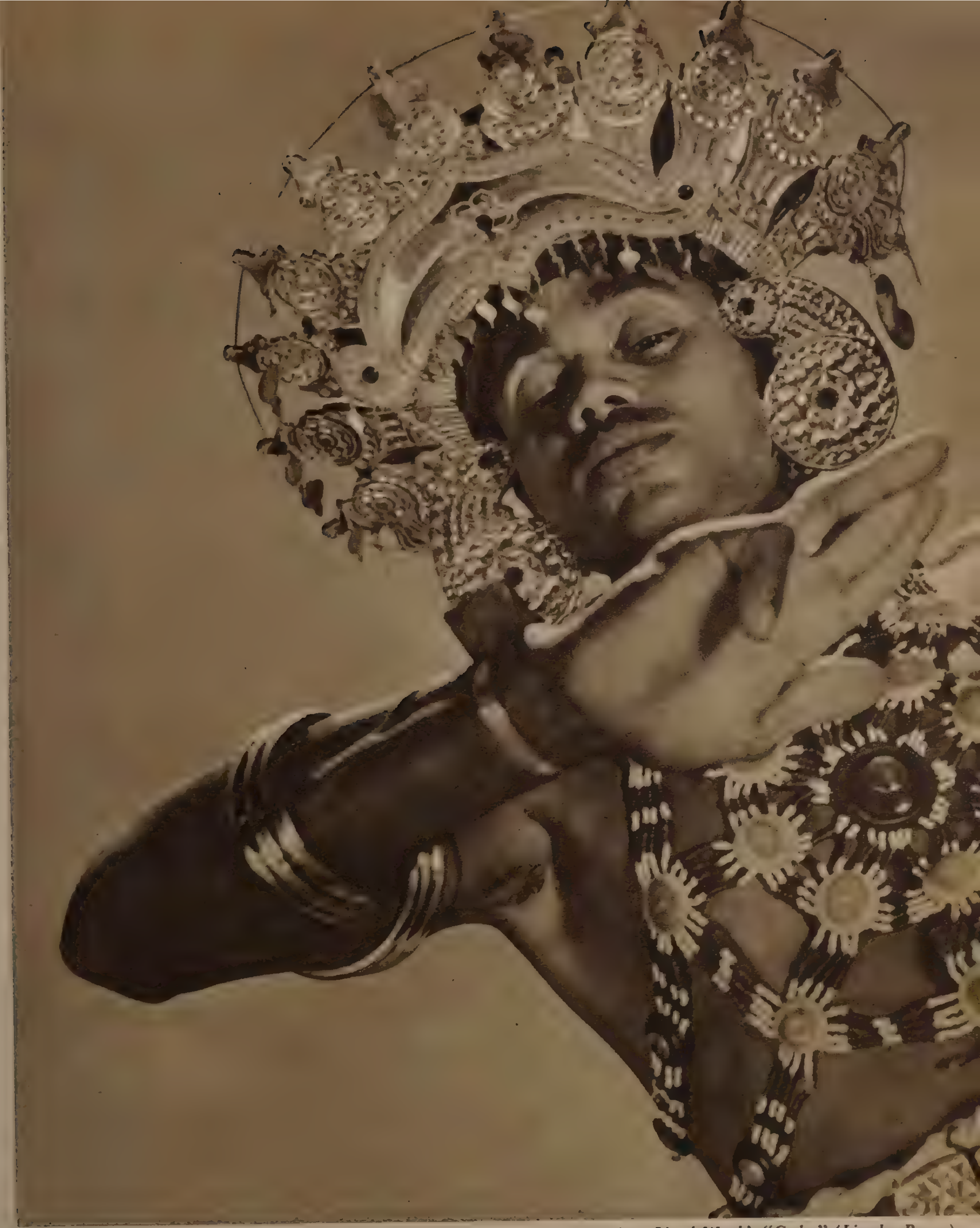


The Tea Bureau

Subsequently Ceylon was invaded by Tamils from southern India: their incursions began in the 3rd century B.C. *Most recent to arrive among the members of the Tamil community are the workers on the big tea estates who make, with their employers, a highly important contribution to the prosperity of Ceylon*

The hands and dress of a Sinhalese woman reveal a peaceful delicacy refined through many generations. All classes take great pride in wearing their very becoming national costume

From Lionel Wendt's "Ceylon" (Lincolns-Prager)



From Lionel Wendt's "Ceylon" (Lincolns-Prager)

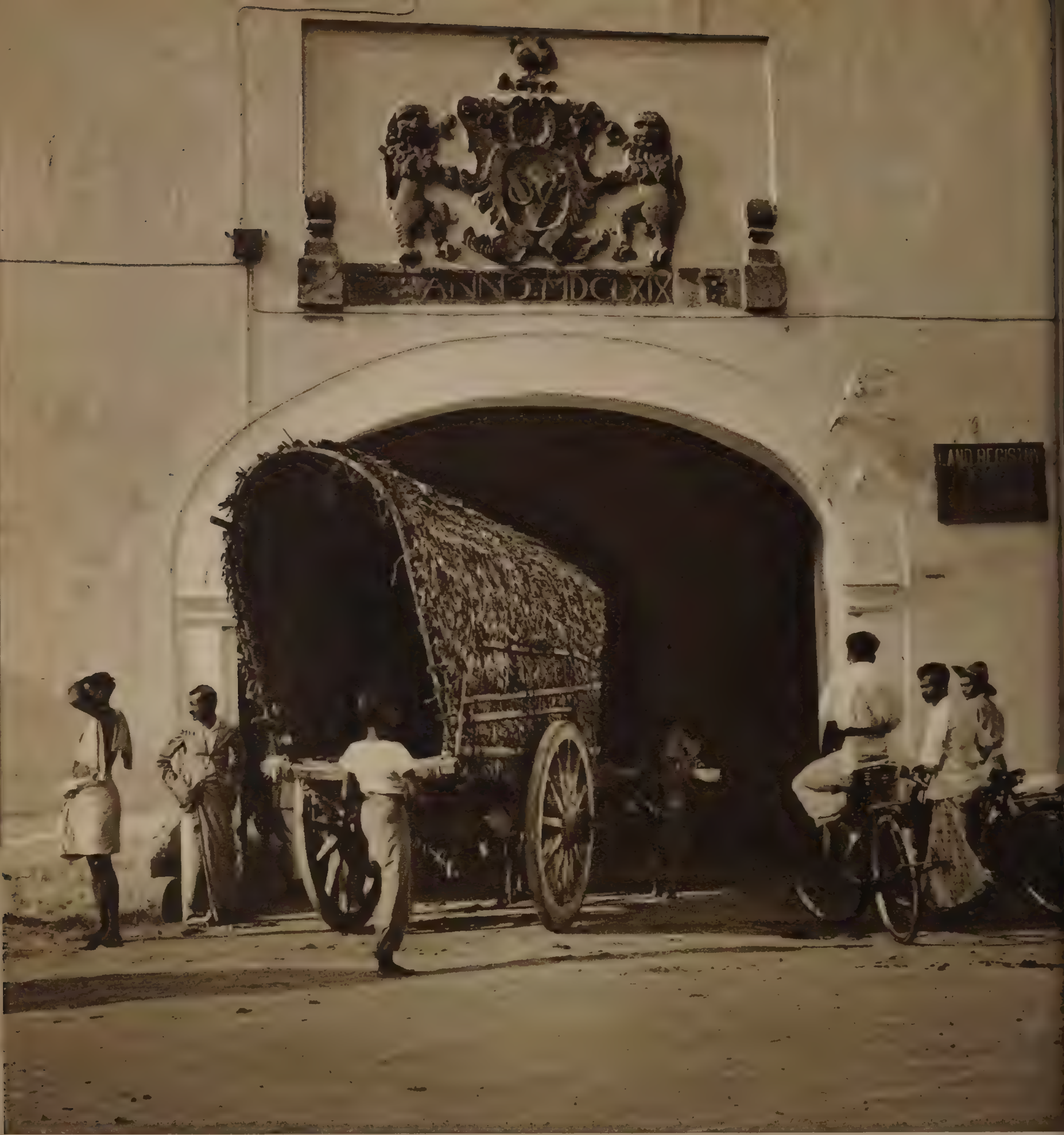
Another aspect of Sinhalese tradition is shown by the Kandyan dances; for although they have taken on a festival air they retain their original function and are performed on particular Buddhist celebrations, notably poya, *or full-moon day. Like their Balinese and Siamese counterparts they are intricate and sometimes obscure, but each movement has its own significance, vital to the unfolding of the narrative of the dance*

George A. Koch

A thousand years ago Ceylon's maritime association with the Moslem world was established by Arab traders and sailors who carried their religion beyond the Indian Ocean to the East Indies. Their descendants today are known locally as "Moors"

The Burgher community of Ceylon is a valuable element in the population. It is prominent in commerce, journalism and administration, and represents, with its mixed ancestry, the more recent but multiple seafaring connections with Europe

George A. Koch



George A. Koch

Galle Fort. Begun in 1625 by the Portuguese, it changed hands several times in the next hundred years but is predominantly the work of the Dutch. During the 17th century neither the Portuguese nor the Dutch were able to conquer the Kandyans in the central plateau of Ceylon, so they built forts such as this around the coasts to protect their settlements and trade from Scotland not to need to have to invent a new kind). Their palm-leaf houses are all set in compounds of palm fences, and the story goes that the householders get up in the middle of the night and shift the fences a few inches over onto their neighbour's land in order to increase the size of their own holdings!

But to follow the fortunes of the dispossessed Sinhalese. Our training programme took us further southward, to the hills and mountains of the south of the island. It is hard to believe there that you are in the same country. The flat, arid, jungle gives way to a green, lush, well-watered world of steep hills and valleys; with carefully terraced paddy-fields covering the valley-bottoms, coconut palms on the hills except where rubber has been planted, and higher up tea bushes climbing right up to the rocky summits of the mountains. Good tarred roads wind among the hills; the land is so populous that villages follow one another leaving little space between; water-buffalo, scrawny cattle and even tame elephants obstruct the highways; good-natured, graceful, rather indolent people lounge in the hundreds of "tea-caddies" at the sides of the roads, drinking hot tea out of glasses or refreshing themselves with the cooling milk from golden-coloured coconuts. Here are the mountain fastnesses from which the Sinhalese people defied invasion first by the Tamils, then the Portuguese, then the Dutch, and then ourselves; until in 1815 they were overcome and for the first time for over 2000 years the Sinhalese people gave up their independence.

I had not been stationed in the country near Kandy for long, however, before we were packed into the inevitable three-ton trucks and sent to Galle, a town on the sea-coast in the south-west corner of the island.

The coastal strip from Colombo to Galle has an intense tropical beauty. The foothills of the central mountain massif rise up at varying distances from the shore, and the space between the hills and the sea is packed with coconut, palmyra and areca palms, jack-fruit and other beautiful food-producing trees. The coconut palms grow right down to the edge of the beach onto which the south-west monsoon hurls great breakers. The shoreline is relieved fairly often, though, with blue lagoons in which one can bathe; and the palm-frond houses of the inhabitants occur so frequently that the coastal road and railway from Colombo to Galle passes through what is in effect one long village all the way.

The people who live here, along the coast, are also mostly Sinhalese; and they speak the same language and many of them practise the same Buddhist religion as the hill people round Kandy. But there is also a surprising number of Christians among them, and plenty of Christian churches are to be seen—mostly Catholic ones built in the Portuguese baroque style. Many of the people, although obviously of pure Sinhalese ancestry, have names such as da Silva, Fereira, de Souza, de Saa. Also, living in the larger towns mostly, working as officials for the government or railways, one finds a lot of people of mixed ancestry, called Burghers. A great many of these Burghers also bear Portuguese names, although the names of some of them are Dutch. The Burghers I met were charming, hospitable people: the men intelligent and the women beautiful—which is the way one wants it.

The Portuguese first visited Ceylon in 1505. It was reported to the king of the Sinhalese that: "There are now in our harbour of Colombo a race of men, exceeding white and beautiful. They wear boots and hats of iron, and they are always in motion . . . They eat white stone and drink blood."

From that time on the Portuguese began to work their way into the island, sometimes by diplomacy, sometimes by force; and they soon had control of the entire coastal belt: north, south, east and west. But they never conquered the hills of the Kandyans. The story of their occupation is one long series of attempts to reach Kandy and capture the Sinhalese king, but every one of these attempts ended in disaster. They built great forts at Colombo, Galle, Trincomalee and Jaffna; they destroyed all the Buddhist and Hindu temples they could lay their hands on, they even attempted to burn the sacred tooth of Buddha—but they never conquered the kings of Kandy.

The Dutch arrived on the scene next and in 1658, after a long and bloody siege, they took Colombo from the Portuguese and later drove them from the island. If the Portuguese had been soldiers and missionaries, the Dutch were traders. They tried to avoid fighting with the Sinhalese, they did not try to convert them, but they stayed inside the great forts which they had taken and drove a brisk trade in spices.

At Galle I had an opportunity of seeing one of these Portuguese-Dutch forts; although Galle Fort is predominantly the work of the Dutch. It is not so much a fort as a fortified town. The walls are enormous. You enter by tunnels through the towering, battlemented ramparts; and, inside, the ancient houses are crowded together along the narrow streets so that there is hardly room to park a car. On one quarter the open ocean batters at the foot of the great wall; at another lie the calm waters of the harbour; while on the landward side the ramparts overlook an open space of grassland which separates the fortress from the rest of the town of Galle. So strongly built is Galle Fort that I imagine even today it could be defended against anything short of an atom-bomb.

The town inside the ramparts was divided by the Dutch into quarters for the different sections of the community. One of the most numerous of these was—and still is—the Moors: the descendants of Malays and Arab traders and sailors who have been visiting Ceylon since the days of Sinbad. Almost any Muslim settled in Ceylon is locally called a Moor, and they are to be found in most parts of the island. Many of the Moors in Galle are traders in gems.

There is another kind of Muslim one meets quite often in the island. If ever you see a body of workers being paid their week's wages at a factory or plantation, you are almost sure to see nearby one or two exceptionally tall men, with thin, hawk-like features, very light in colour, and wearing the kind of robes and turbans one associates with the North-West Frontier tribes of India. They are certain to be carrying hefty, brass-bound staves which they look as though they would have no hesitation in bringing about somebody's pate if they felt like it. These are the people locally known as Afghans, and they are the island's money-lenders. They come, as their clothes would lead one to think, from the North-West Frontier of India, and they make themselves rich by lending money at exorbitant rates to hard-pressed workers. They are a law unto themselves, and heartily detested by most of the regular inhabitants of the island.

The nation which has probably had the most influence on Ceylon, though, in the last couple of hundred years, is the British.

After the Dutch had occupied the coast for some hundred and thirty years the British arrived on the scene and—practically without a fight—took it away from them. They then turned their attention to conquering Kandy, but at first had no more success than the Portuguese and Dutch; one expedition, in fact, which reached Kandy was massacred to a man by the Sinhalese on its way back. But in the end—helped by a large section of the Sinhalese people themselves, who were revolting against their monarch—they succeeded, and the whole of the island came under one government again: the British Raj.

To see what the British have done to Ceylon—beyond setting up numerous statues of Queen Victoria—one must leave the coast and go up to the highest country.

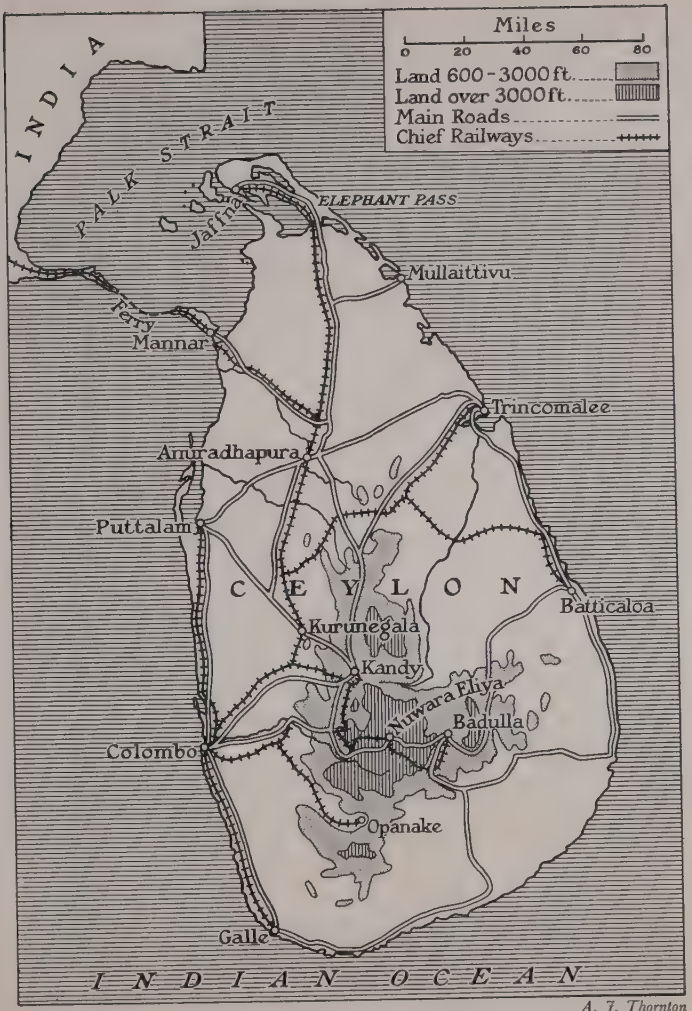
I was lucky enough to spend some leave in the highlands. The train climbs steeply from the coconut-covered coastal belt, through the rice- and coconut-growing low hill country, up through hills which are planted with rubber trees so that nothing else can be seen for miles, and up into the world of tea.

The rubber and the tea—the wealth of Ceylon—are the work of the British. Vast areas of dense tropical rain-forest have been cleared away from the mountains so as to leave no trace and the country has been closely covered up to a certain area with rubber, and above that with tea bushes. The tea bushes grow on the most unlikely hillsides, where it is almost too steep to stand and only the thinnest and patchiest of soil covers the rock. The climate, up in the tea-growing country around Nuwara Eliya and elsewhere, is the most perfect you will find anywhere; and this is the country that most Britons recall when they think of Ceylon.

Most of the workers on the big estates are not Sinhalese, they are Tamils; but a different sort of Tamil from those indigenous to the island. They are recruited in southern India to come and work for a certain time. They used to be sent back again at the end of their contracts, but now most of them spend their lives on the island.

Although the British planters have built beautiful bungalows and brought their children up on the estates, they have never really looked upon Ceylon as their homeland. Their intention has generally been to make enough money to retire on and then go home. At the moment their future is uncertain, for more and more of the estates are being brought under the management of Ceylonese, who are proving to be very capable of doing the job; but no-one should forget the very real contribution to the prosperity of Ceylon which was made by the early planters from the British Isles.

Since the war I have had the great pleasure of meeting some of the people who are running Ceylon—now that it is a Dominion and is controlling its own destiny. The most surprising and attractive thing about them is the absence of antagonism between members of the different racial groups. Occasionally, of course, one hears Jaffna Tamils complaining



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mildly of slight favouritism towards Sinhalese in the filling of posts or the granting of land to settlers, but I do not think that there is more than a small amount of justification for this. Compared with other lands in Asia (and elsewhere) the tolerance shown by all the racial groups is astounding. In Colombo there is a society of cultured and intellectual people, drawn from most of the races mentioned above, in whose relationships race, colour and religion count for nothing at all. I know of nowhere else in Asia where there is the same absence of racial prejudice. The standard of education among the educated Ceylonese is extremely high, owing partly to the presence of a large number of good schools, but also because many Ceylonese, for some time past, have been making their way to universities in Britain. The Jaffna Tamils are possibly better represented among the professions in proportion to their numbers than the other groups: like the Scots they have an extraordinary aptitude for education, and great industry.

But although there is hardly any communal ill-feeling in Ceylon there is surprisingly little intermarriage between the communities; and even among the Sinhalese themselves there are the remains of an ancient caste system which, among the more old-fashioned families, largely controls the choice of marriage partners. The castes were originally occupational. Many of the leading families of Colombo, for example, are of the fisher caste, and the Prime Minister (who is not only a great statesman but one of the most likeable and charming old gentlemen I have ever met) comes from the farmer caste, and was in fact at one time a farmer. Intermarriage between these caste-groups is generally opposed by the older generation, but slowly this prejudice is breaking down.

The language of these educated Ceylonese is English. They speak their vernaculars as well, of course, but in public—in business or politics or in the numerous clubs there are in Colombo—English is the most commonly spoken language. There is a move to return to the vernaculars, but it does not seem to me to be making much headway; the use of English helps to minimize the difference between Tamils and Sinhalese, which is desirable, and also it keeps Ceylon in touch with the rest of the world. The educated people are far less provincial than those of many English cities. You will find in Colombo a livelier appreciation of European art and music and literature than exists among most sections of the community at home; and a healthy movement to apply the lessons to be learnt from Europe to indigenous culture.

From the way in which the Ceylonese are tackling the problems of their ancient, and yet in a sense brand-new, country, I think it safe to infer that for a long time Ceylon will continue to be one of the pleasantest places on earth.

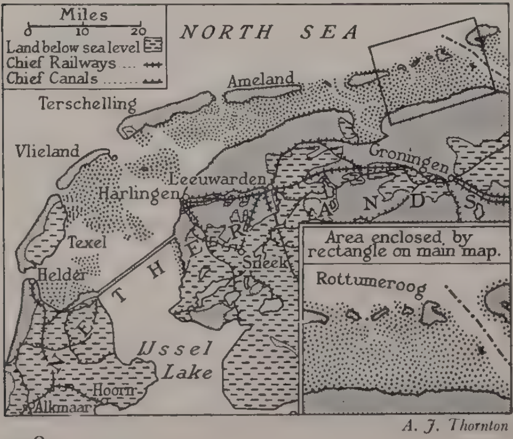
The Travelling Islands of the Netherlands

by JOAN and HENRI SCHOUP

The wheels of our bicycles were humming quietly over the tar path leading through the low dunes to the sea, when suddenly we had to apply our brakes and jerk to a standstill. The path had come to an abrupt end and, forty-five feet below, the sea frothed and surged angrily, flinging snow-white flakes of foam high in the air. No sign warned the approaching rider to take care, no fence barred his way, the path simply finished in a ragged edge.

"Yes", said the old beachcomber, "this is a strange island." It was then that we realized we were in one of the most unstable parts of the Netherlands—the West Frisian islands, which lie along the northern coast like a row of sandy pancakes. People had told us before that these islands in the north were continually altering their coastlines, and that maps of a few centuries ago showed them to have had quite different shapes from their present ones. They could perhaps be called "the travelling islands" for they gradually move eastwards, presenting the Dutch Ministry of Works with an extremely difficult problem.

What, for instance, had happened to the bicycle path? Quite unexpectedly, a piece of dune had given way, undermined by the sea which nibbles greedily at the islands in the west, sometimes biting off half a village, or a stray house. This sometimes has tragic results, for the valuable fertile soil from the west is replaced by worthless stretches of sand in the east, which cannot be used for agriculture or pasture-land, and are therefore a loss to the community. This explains why the islands become more and more sandy, and at the same time move imperceptibly nearer Germany.



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The most spectacular rate of progress is reported from one of the smaller islands, Rottumeroog. This classic example of an island with an 'itching foot' has shifted its position between 1799 and 1949 a distance of over 3000 yards, or approximately a yard a month, changing its shape as it went. On the island only one man now lives; and what he lacks in company is compensated for by the odd fact that every few years his house has to be moved to keep pace with the energetic island.

The loose sand shifted under our feet as we followed Ameland's beachcomber downwards to a small strip of beach, not more than ten yards broad. It was low tide.

"Look", he said, pointing at some small black patches on the white sand. "Do you know what they are?" We saw what seemed to be the remains of a decayed barrel. Pieces of mildewed wood stood upright in a circle, surrounded by tiers of clay bricks. Our companion explained that the strange array of bricks and wood had once been a well, probably in the middle of a prosperous village which had gradually been covered by the merciless sand. And there, in the clay, were the clear impressions of hoofs and feet. "They could be a thousand years old", said the beachcomber. Hundreds of years ago the sea had covered the village with sand and completely destroyed it. Now, centuries later, the sea swept aside the sand and the footprints of human beings and cattle that had once lived on farms in this part of the island suddenly reappeared. The tell-tale signs would remain for only a few hours, waiting for the high tide to obliterate them once again.

It is difficult to realize that the same sand which gradually engulfed the small village is still bent upon its work of destruction. Less than a mile away, the village of De Blieke

By courtesy of K.L.M.—Royal Dutch Airlines

Terschelling, one of the Frisian Islands which are slowly moving eastwards. Only a narrow strip of artificial dunes protects farmlands and the village of Westerschelling from being swept away

waits to undergo the same fate. The inhabitants all fled from the approaching sand which made their grassland barren and their houses uninhabitable, and the deserted village slowly fell to pieces. A solitary house remains standing.

The village of Hollum in the south-west of Ameland is threatened by another danger. Nine hundred people there face being flooded out. The dunes, which formerly protected them, have been slowly eaten away, and only half a mile or so of low fertile grassland stretches between the sea and the village.

Hollum has an unexpected tie with the outer world, and there will be sad hearts in many faraway places if it succumbs to the sea. A number of plain wooden crosses in the small village cemetery bear the names of Allied airmen, soldiers and sailors—just a few of the hundreds who died in the waters surrounding the West Frisian Islands. Many more have their last resting-place at Nes, the capital of the island, and British visitors make a point of coming to this quiet spot, with its rows of neatly kept graves which bloom all the year with flowers.

We left our friend the beachcomber making his daily pilgrimage along the shore, shaking his head sadly at each new gap in the dunes. As we came away from the western part of the island we unconsciously increased speed, trying to rid ourselves of an uneasy feeling that the sea was following close upon our heels.

An enormous sandy plain faced us at the east end, without a single blade of grass or sign of life. Here the sea had given poor compensation for the damage done in the west. The harsh cry of the seagulls and the deafening roar of the surf filled the vast space with a great symphony of sound.

A mist hid the Ameland shore as we left for our next stop, Vlieland. This island is famous now for the wild birds which frequent its shores; and as we arrived hundreds of them were winging overhead, uttering raucous cries as if annoyed by the sudden intrusion.

The shape of Vlieland, too, has drastically

P. H. van der Weel

Ameland, another "travelling" island. (Above) *The bleak waste to the east, given up by the sea in return for fertile soil, farms and villages destroyed when* (below) *the waves fling themselves greedily at the foot of the dunes at the west end, gradually undermining the vulnerable coast*

P. H. van der Weel

altered through the centuries. In approximately 300 years, half its width has been lost to the sea, and in 1850 the Dutch Government were warned that unless rapid action was taken, they would lose Vlieland completely. So millions of guilders were invested on defence, and now the entire coastline is artificially guarded by fifty-nine groynes. It is a magnificent sight from the air—the long golden beach divided at regular intervals by stone groynes stretching far out to sea, breaking the force of the surf.

The sea and the sand long ago hid all traces of their destructive work, but on a map dated 1600 the villages of East Vlieland and West Vlieland are clearly marked. West Vlieland was then in the centre of the island. By 1736 it had vanished. Dykes were built in a frantic attempt to save it, but too late. Now West Vlieland exists merely as land lying at the level of high water, and it makes a brief appearance at low tide each day. Standing at the end of the island, looking towards Texel, we were reminded of the bleakness of Ameland, for in front of us a similar area of sandy shallows stretched ahead, waiting for the incoming tide to swallow it up again.

Texel is the largest of the islands, with a population of 9500. In Roman times it was joined to Vlieland, and some say was part of the north coast of Holland. Very few of the sheep for which the island was once famous are left, for Texel also has its troubles with the sea. Because of its position it loses sand from the west side and gains it on the east, thus keeping its width fairly even. But it is doubly unfortunate, because it loses eight yards a year from sea action at its south-west end, and no less than eighteen yards at the northern end, through very strong currents which prevent new land being added. In just one century, the coast of Texel has moved back 1250 yards. On a flying visit we noticed concrete fortresses standing, gaunt and lonely, in the sea. We asked why they were there. "They were built by the Germans during the recent war", we were told, "at the foot of the dunes." There they stood, buffeted by the waves, silently watching the coast retreat behind them.

By using all the natural resources at their command, the people of Terschelling, which lies on the other side of Vlieland, have made artificial dunes. These are made by laying dead trees or brush along the ground until the sand blows up and covers them, forming a low sandbank. Then another layer is placed on top, and the process continued until there is a sizable dune on which grass can later be planted. Much patience is required, but given a dry summer and heavy winds, an artificial dune can grow seventy-five yards high in one season. Terschelling is conservative, judging from the standards of the other islands. It travels a mere half yard each year.

The West Frisian islands are of little economic value. The cost of defending them from the sea is high, and the inhabitants can easily be found homes on the mainland. Why, then, is the Dutch Government so anxious that something be done to prevent them from disappearing altogether, and why has it spent millions of guilders already on defence? The answer is simple enough. Without the natural barrier of the islands, the vulnerable mainland would have no protection against the North Sea storms which sweep in with such ferocity every winter, breaking the dunes, destroying the dykes, and causing widespread havoc.

What is the future of the islands, which lose some 3,000,000 cubic yards of sand annually? The Chief Water Engineer for the north of Holland, Mr S. H. Ringma, has an office in tiny picturesque 17th-century Hoorn, by the side of the old Zuider Zee, now the IJssel Lake. The walls are covered with maps and plans of the islands, showing their deviations over the centuries. Once a month he pays them a visit in the water authority's boat.

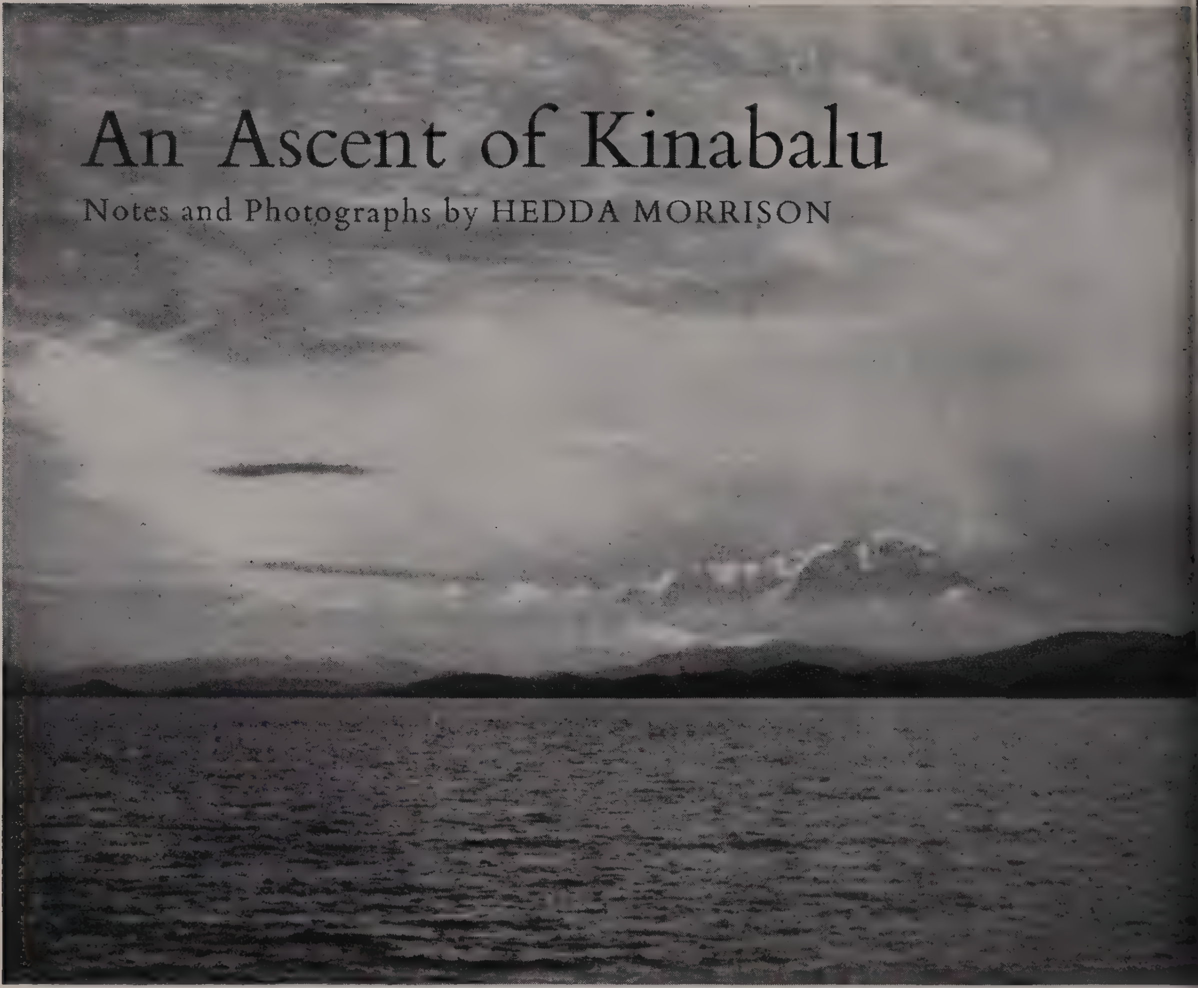
"We have plenty of plans for their future", he told us, "but, like many other countries today, insufficient funds to meet the enormous cost. The upkeep of groynes, for instance, is a very expensive business and during the war many on Vlieland had to be left unattended for years. They are now badly in need of repair."

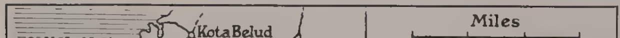
Plans for the defence of the larger islands are still in the discussion stage, but Engineer Ringma pointed to the tiny islands at the east end of the group. "It is quite possible", he said, "that they could be joined by closing all the gaps. Then we would build dykes from the islands to the mainland, as the currents there are not strong enough to interfere with such work."

If this idea ever becomes reality, there will be a huge area of land to pump dry and make into a 'polder', which will eventually become as typical a part of the Dutch scene as are the many other polders with their villages and fields and windmills. But this is no solution to the immediate problem, and it seems that little can be done to arrest the steady progress of these travelling islands.

An Ascent of Kinabalu

Notes and Photographs by HEDDA MORRISON





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(Above) *Kinabalu from the sea north of Jesselton, the peaks capped with a layer of evening cloud. Kinabalu, with an altitude of 13,442 feet, is the highest mountain in Borneo. The first recorded ascent was made in 1851 by Hugh Low. It is not a difficult climb; the main problem for early travellers was the organization, as guides and porters, of the Dusuns who live around the mountain and who have made paths leading up its sides which they use when collecting forest produce or setting snares. Since Low's ascent the mountain has often been climbed and when in 1881 the British North Borneo Company opened up the country—they made excellent bridle paths—the climb became easier. Nowadays it is generally begun from a village in the foothills to the south-west of Kinabalu*

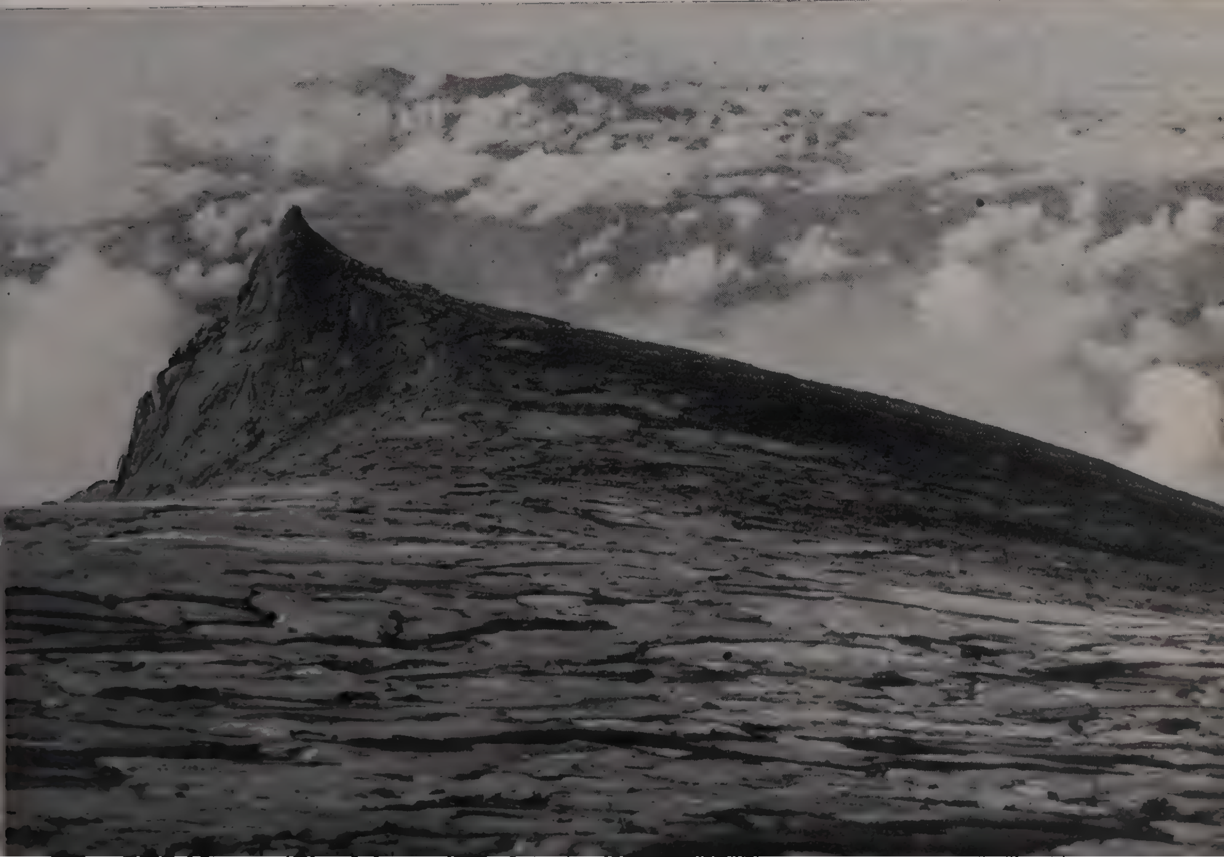
Kinabalu from south of Ranau. The journey from Keningau in the south to Ranau and thence to Kota Belud is a leisurely one of great charm, through a fine countryside of rolling hills, with the mountain's great precipices appearing and reappearing to the northward around the bends in the track

(Opposite) *A fringe of granite pinnacles surmounts the stunted forest growth covering the upper slopes of Kinabalu.* (Above) *The gnarled trees of this upper forest are festooned with goatlike 'beards' of moss* (right) *for which the heavy rainfall is responsible*

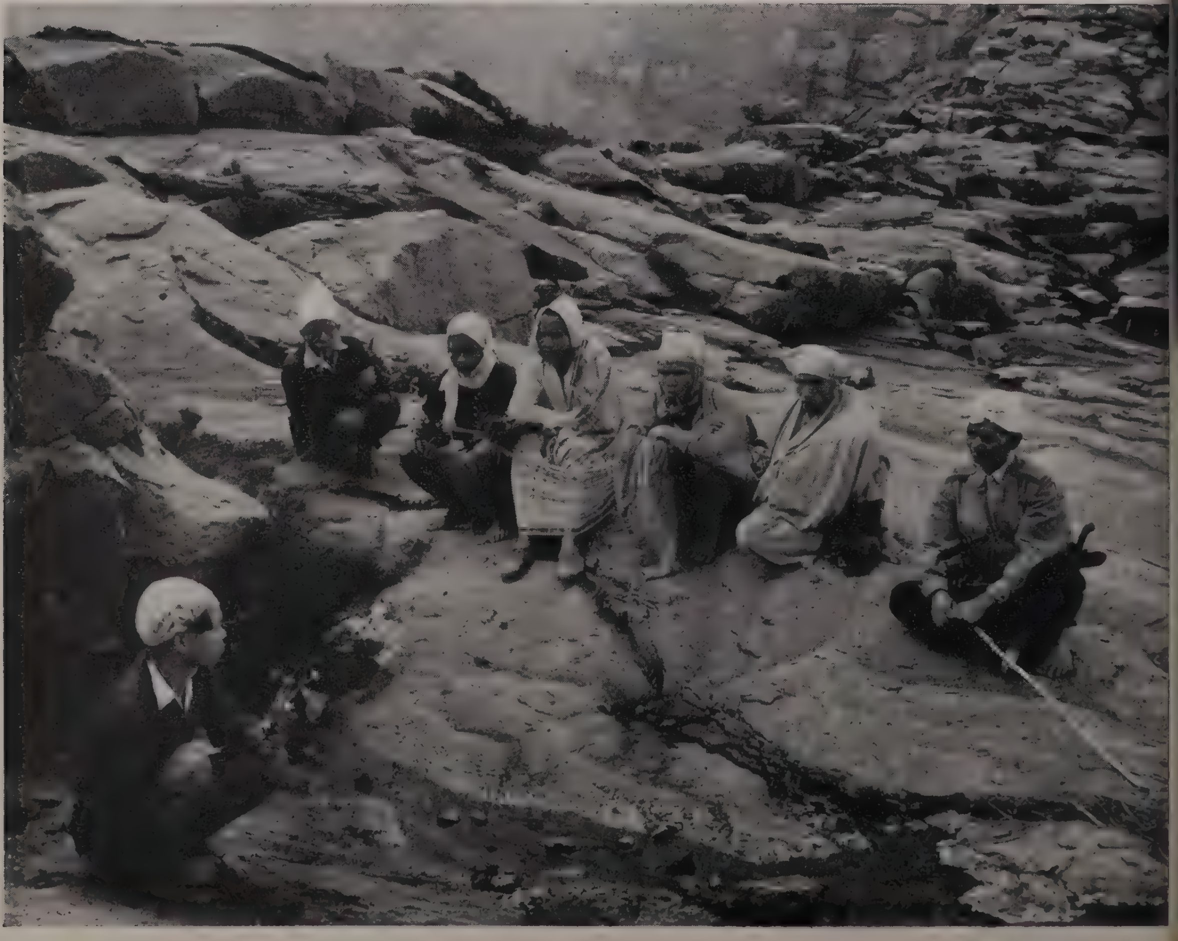
(Left) *Above the forests are great open slopes of granite dotted with dwarfed trees, heaths and a kind of rhododendron with pretty magenta flowers. One of those who climbed Kinabalu in the eighties, John Whitehead, described these higher slopes exactly: "Around us was a desolate region of granite slopes, the general effect of which is curious, giving one the idea that everything is much further off than it really is. This effect is produced by the stunted but perfectly formed shrubs and trees, which in the bright sunlight looked as if they were covered with dust of a light grey colour . . . an optical illusion caused by the reflection of bright sunlight on these grey-coloured slopes"*

(Right) *Not far below the top, above the tree-studded granite slopes, the Dusuns who accompanied the Morrisons lit fires to tell their friends far away in the valley that all was well.*

(Opposite page) *The summit of Kinabalu consists of a gently inclined tableland of bare, open granite with the actual peaks mere crags of a few hundred feet rising from it.* (Top) *Two of the pinnacles.* (Bottom) *One of the lower peaks surrounding the summit*



(Left) *The great precipices of Kinabalu from the top of Low's Peak, the highest point of the mountain: a sight seldom seen because of the drifting mists that close in about the topmost peaks for the greater part of the day. Though close to the equator it can be cold and damp on the summit, 13,000 feet up*



An open view is a rarity in Borneo and that from the mountain, when the sun broke through the clouds, was all the more appreciated. The little cairns erected by the Dusuns made the way down easy to find despite recurrent rain

(Opposite) *Dusun porters resting at the top. The Dusuns hold Kinabalu in great veneration and make sacrifices to the mountain spirits, but they enjoyed the climb and carried posies back to their friends in the village below*

Land or Water?

The Background of Amphibian Existence

by MALCOLM SMITH

Twenty-five years as a doctor in the Far East enabled the author to develop his particular interest in reptiles and his enthusiasm has stimulated the formation of the British Herpetological Society. The colour-plates accompanying his article are reproduced by permission of Adprint and the Editors of the New Naturalist *Series, published by Collins, in which they will appear in September as illustrations to a volume by him entitled* The British Amphibians and Reptiles

THE class of animals which are called the Amphibia includes the Salamanders, Newts, Toads, Frogs and those little-known worm-like creatures termed the Caecilians. The name Amphibia is a very appropriate one, for with the exception of a few species in which the young undergo their development in the body of the mother and are born fully formed, the remainder spend the first stage of their lives in the water, breathing like fish by means of gills. At the end of this stage—their tadpole or larval existence—their bodies undergo rapid and remarkable changes in structure and they transform into small but complete miniatures of their parents. Most of them then spend the rest of their lives on land, but every year they have to return to the water to breed; and as their skin is naked and must be kept moist or it cannot function, they can never live far from water.

The skin of the amphibian in fact is a very important part of its body and performs many functions. It is not only a covering for the internal organs: through the skin all water is absorbed, for the amphibians do not drink in the ordinary way like birds and mammals. The skin also plays an important part in respiration, in some species of salamanders actually replacing the lungs. Many amphibians hibernate in the water—often for months at a time—and during that period, when their oxygen requirements are small, breathe entirely through the skin.

The amphibians therefore must pass their lives within reach of water suitable for breeding purposes or for hibernation—not too deep or liable to frequent disturbance—and such water is not common everywhere. This necessity confines amphibian existence within narrow ecological limits and has possibly operated to prevent amphibians from advancing far up the ladder of evolution.

Some of the most primitive salamanders never pass beyond the larval stage and while retaining tadpole shape become fully mature in other respects and breed in the ordinary way. As examples of this form we have the Mud Puppy (*Necturus*) of North America and the Proteus or Olm of the subterranean lakes of south-eastern Europe.

A more advanced stage of this condition, when considered from an evolutionary point of view, has been reached by the Axolotl of the Mexican plateau, now often kept as a pet in Britain. As long as the Axolotl has plenty of water it retains its tadpole form indefinitely and breeds, but if the water in its tank is gradually reduced so that the animal is forced to breathe more often, its lungs develop, the gills are absorbed, changes take place in its skin and in its coloration and the animal finally becomes what was at one time thought to be a different species, namely the Tiger Salamander (*Amblystoma tigrinum*). A still more rapid method of inducing metamorphosis in the Axolotl is to feed it on thyroid substance.

For this prolongation of the larval state beyond its normal time, the term neoteny was introduced. As a very rare condition it occurs in our British newts, an example being shown on page 191. But in these individuals maturity is not reached, the reproductive organs do not develop properly, and although they may live for several years they do not breed.

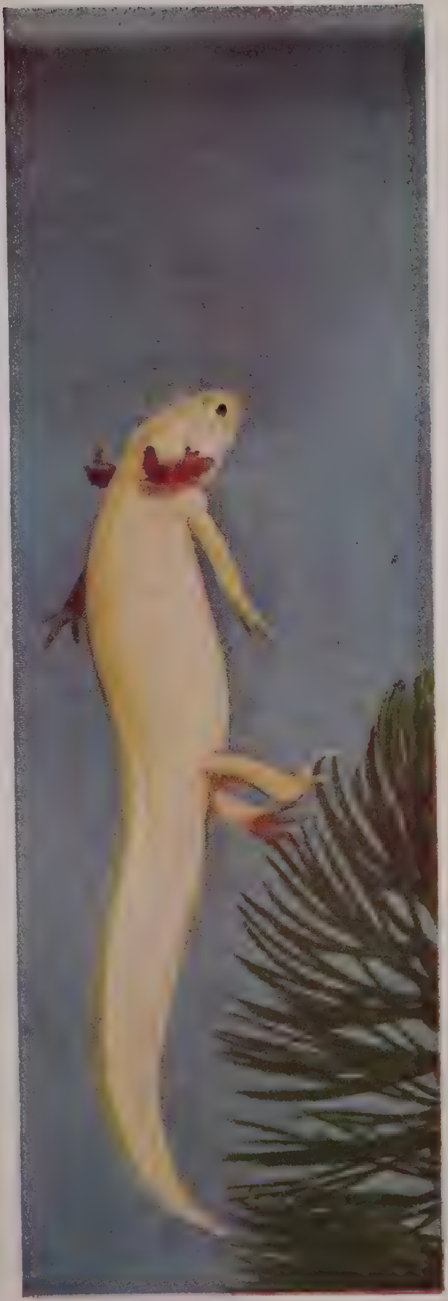
The cause of neoteny is still not fully understood but it is undoubtedly related to the thyroid gland. It is well known that this gland plays an important part in the metamorphosis of the tadpole. If thyroid substance is added to their food it can hasten the change so rapidly that in a week or so a minute animal, only half the size of what it would be if transforming in the normal way, is the result. Examination of the thyroid gland of these neotenous newts has shown that it is not fully developed. There is evidently also a connection in them between neoteny and coloration, for a large proportion of them are partial albinos. But the possibility of the neotenous form does seem to illustrate what one may call amphibian hesitations in respect to evolution: the indecision between life on land and life in water, with life in water as the state from which it requires some powerful impulse to emerge.

The amphibians are widely distributed over most parts of the world. All the fossil evidence that is available to us shows that they have always been inhabitants of fresh waters and not of the sea. We may assume, therefore, that their distribution over the world took place at a time when there were land connections by which they could travel. The possibility, always present, that fresh waters can dry up and leave their inhabitants stranded, may have been a determining factor in the evolution of the terrestrial form from the aquatic one. They cannot tolerate salt, and if placed in salt water quickly die. No rule, however, is without its exception and a few species living today have developed some toleration of salt and are able to live and breed in brackish water.

The amphibians being cold-blooded animals are dependent for the temperature of their bodies upon that of the surrounding atmosphere. They are most abundant in numbers and in variety of species in tropical countries. Some species however can tolerate a considerable degree of cold. Those that inhabit mountainous regions at high altitudes—such as the Himalayas—live and breed in waters where the temperature is seldom more than a few degrees above freezing-point. The Common Frog of this country has a high tolerance of cold for it emerges from hibernation to breed quite early in the year when wintry conditions prevail and its ponds may still be frozen over. It is the only amphibian to live within the Arctic Circle and that it can survive there shows remarkable vitality for in those high latitudes nearly nine months of its life are spent in hibernation, leaving only three for breeding operations and the development of the tadpole.

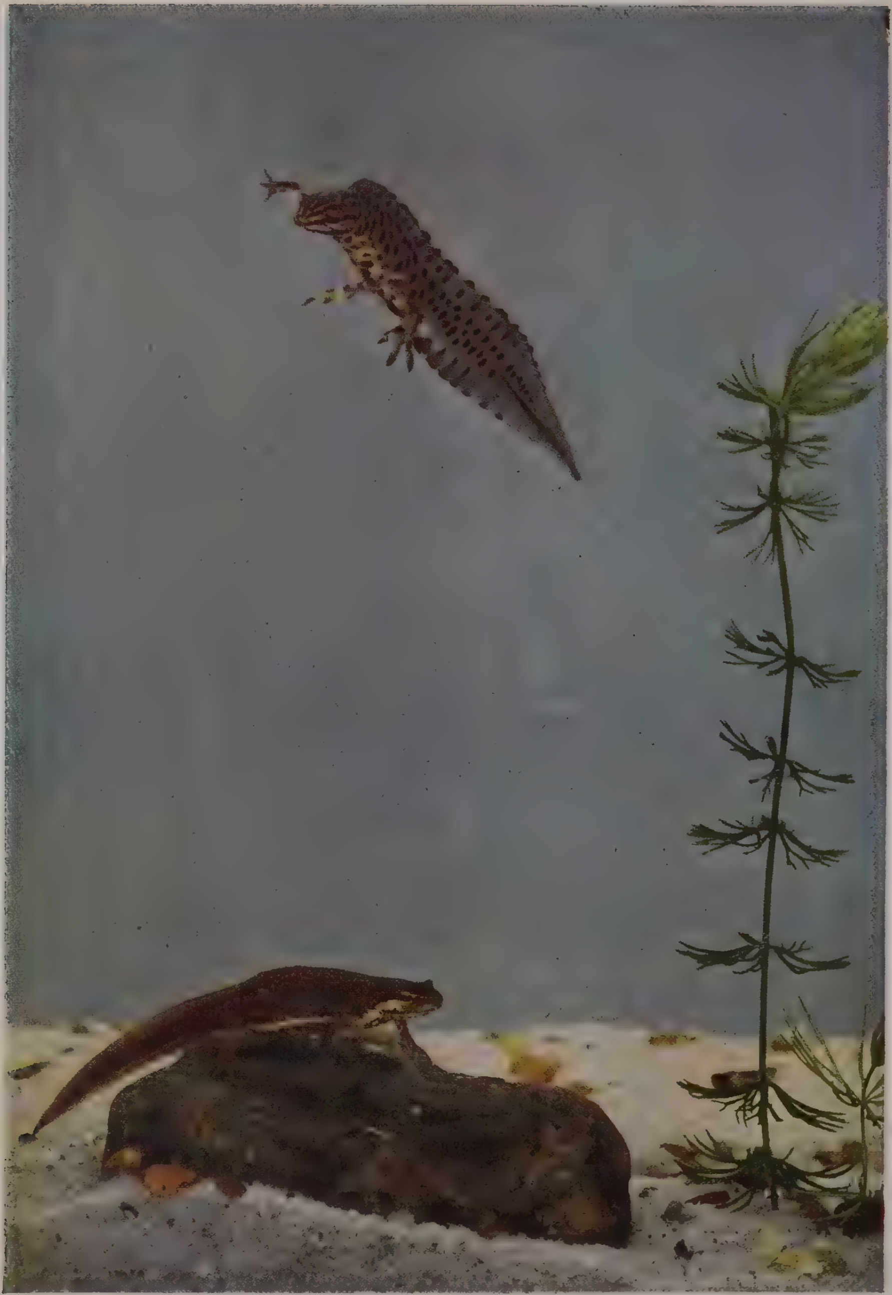
Between the salamanders and newts, or Tailed Amphibia, scientifically called the *Caudata*, and the toads and frogs—the Tailless Amphibia or *Anura*—there are many points of difference apart from the presence or absence of a tail. In classification they form two separate Orders and there are no connecting links between them.

The Caudata are the more primitive of the two and in their external appearance resemble the earliest amphibians, now known only as fossils. Their ancestors were some fish-like animal and they were the first vertebrates or backboned animals to develop limbs and lungs and live on land. In their tadpole life the Caudata early acquire all the organs that they will have in later life and except for their gills they look much like their parents. They differ also from the Anurans in their method of reproduction.



All Kodachromes by W. S. Pitt

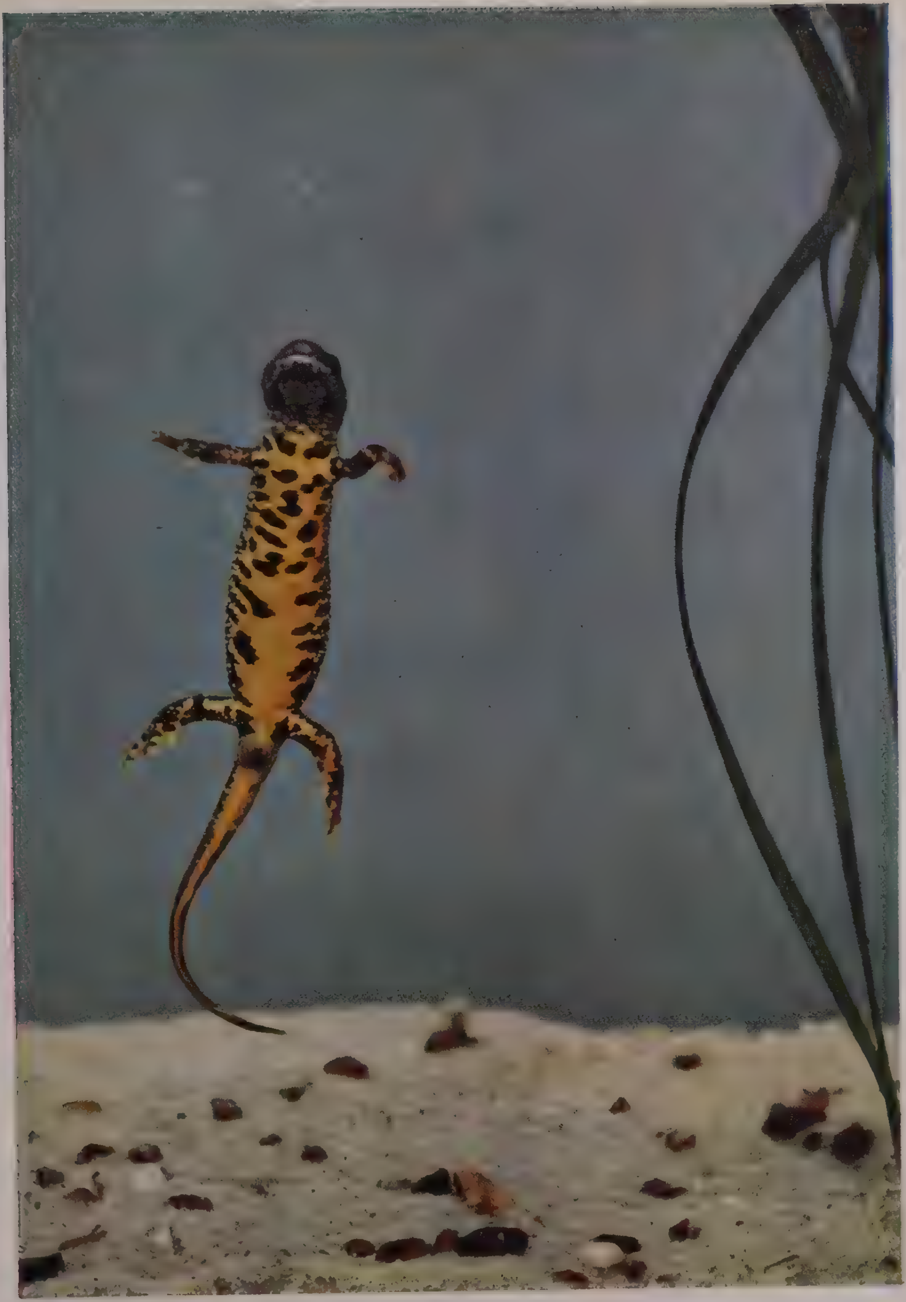
A neotenous example of the Common or Smooth Newt (slightly enlarged). In this albinistic form the colour of the animal varies from cream to pale, sulphur yellow; the eyes are black and the gills bright red, the colour being caused by the blood circulating in them. The lungs do not function



Adult male and female Smooth Newts. The upper figure shows the male. Note the strong dorsal crest, a characteristic feature of all male newts in the breeding season. When this is over they leave the water and the crest is largely absorbed

Fertilization with them is said to be "internal", the sperm of the male entering the body of the female. It is then stored in a special pocket at the end of the intestinal canal where it remains until the eggs are ready to be fertilized. In some species this may not take place until months, even years, after mating. There is a case on record of the common Spotted Salamander of Europe (*Salamandra maculosa*) producing a family of fourteen, after having been alone in captivity for two years and four months.

The tadpoles of the Anura on the other hand bear no resemblance whatever to their



Female newts have no crest and can thus be readily distinguished from the males. This picture shows a female Warty or Great Crested Newt. It is the biggest of the British species, attaining when fully grown a length of six inches or more

parents and the reconstruction of the body when metamorphosis takes place is in consequence much more drastic. Fertilization in the Anura is external, as it is in the fishes, the male discharging his seed over the eggs when they are laid in the water. He must therefore be with the female at the time and in order to maintain contact clasps her firmly round the body. This nuptial embrace, if the female is not ready to spawn, may last for days during which time the male does not for one moment relax his grip.

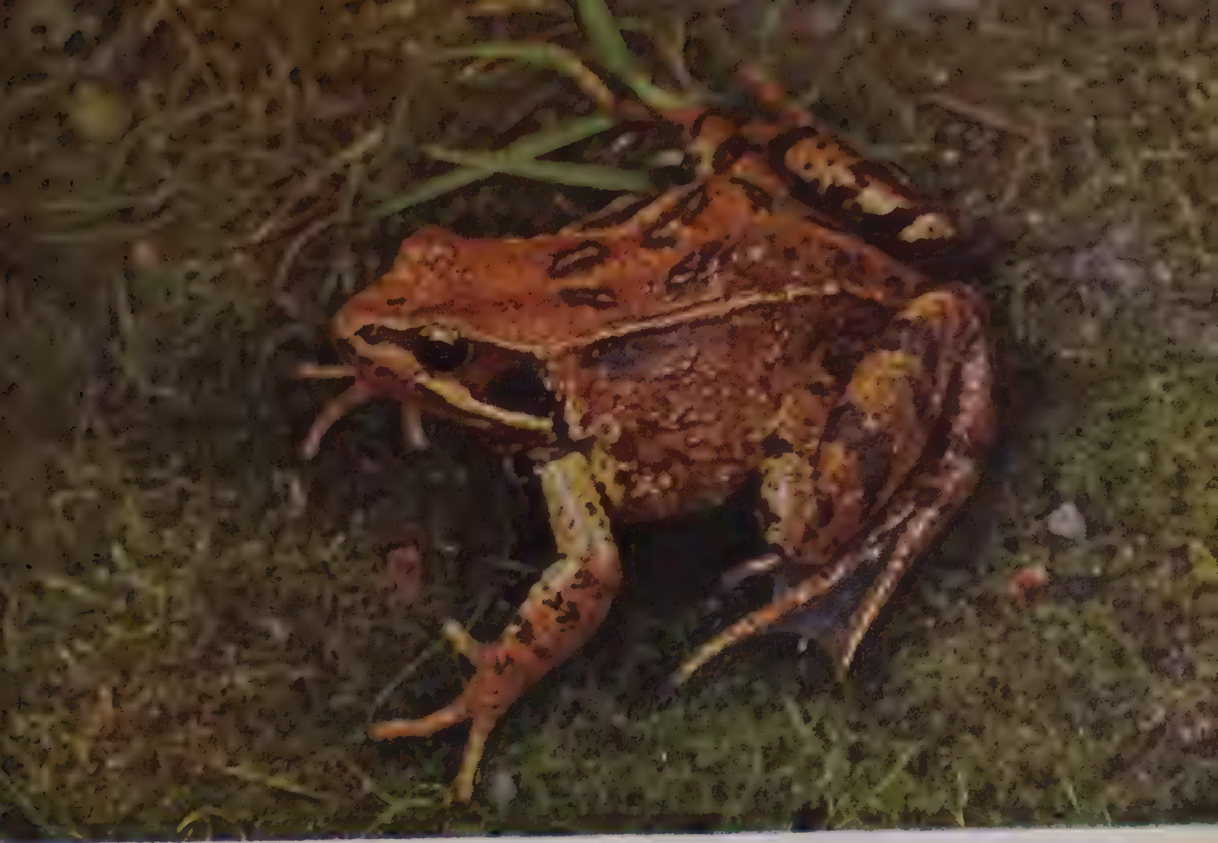
All the amphibians are carnivorous. Their food for the most part consists of small creatures such as insects and their larvae, both the aquatic and terrestrial forms, spiders, worms, molluscs and crustaceans, the diet varying with the species and the conditions under which it lives. But some of the larger frogs and toads will devour small mammals, birds and fish. The tongue by which they catch their prey when living on land is attached to the front of the mouth and in the two Orders differs in form and in the manner in which it is used. In the toads and frogs it is elongate, forked at the tip and when at rest in the mouth points backwards. When in action it is flicked out of the mouth and withdrawn, the food adhering to it, with astonishing rapidity. So quick is the movement performed that the eye cannot follow it. In the Common Toad in which it has been studied by means of photographs it occupies about one-tenth of a second.

In the Caudata on the other hand the tongue is circular in shape and is practically fixed in its position so that when it is projected the whole floor of the mouth is carried with it. It cannot therefore be extended far beyond the mouth and is a much less effective weapon than that of the toads and frogs. Our British newts when living on land use the tongue regularly when catching their prey, a fact which is not known to many who have kept these animals and seen them only in the water.

Another point of difference between the Caudata and the Anura is in their vocal powers. Newts and salamanders when caught often utter a faint squeak. It is a cry of fear, it does not vary in character in the different species and, as far as we know, in none of them is it used as a means of communication among themselves.

Beyond this primitive state of affairs the more highly organized Anurans have advanced quite a long way. Many of them, the males in particular, have powerful voices which they use in the breeding season to attract the females to them. Each species has its own particular call, which to the trained ear is as distinctive as the song or cry of a bird is to the ornithologist. In character the voices vary enormously, even in our own British species. The croak of the Common Toad is a plaintive note, something like the bark of a small dog when heard in the distance, that of the Common Frog a deep cat-like purr, or when many are heard together like the dull whir of machinery. The Natter-

Female Common Toad (life-size). The female grows considerably larger than the male, which seldom exceeds two-and-a-half inches in length. Here the toad is about to seize a worm. She is studying it intently, as toads usually do, before flicking out her tongue to catch it when it moves



Female Common Frog. Frogs vary enormously in colour and markings: no two are ever quite alike. The upper parts may be light or dark green, olive, yellow, brown or red and the dark spots vary in both size and number. The colour can change with the environment: red is common in Scotland

jack has a strident rattle, so loud that on still nights it can be heard a mile or more away. The female can only grunt, but this can vary in tone and inflection and may be used by her as a signal to the male during spawning. By it she informs him that the eggs have been laid and she has no longer any need of him. In the Anurans the voice has become a definite means of communication among themselves.

Most frogs and toads use their voices only during the breeding season. When that is over they leave the water and live solitary lives. The Edible Frog on the other hand, perhaps due to its communal habits, continues to go on croaking when mating is over.

This frog has been introduced by man and has established itself in several parts of south-eastern England. Its habits are mainly aquatic and diurnal and a colony that has attached itself to a particular pond will remain in it for years. The frogs living there are thus brought into daily contact with one another. They appear to like each other's company. Whether this communal life has brought about more talkative habits we do not know, but croaking goes on—although on a more subdued note than when breeding—all through the summer. But it is no longer a call to the female; it is an answer given to another male.

In many other ways also the Anura have become more highly developed than the Caudata. The Tree-Frogs—several hundred species of which are now known—have developed adhesive discs to the tips of the fingers and toes by which they are able to climb trees and scale rocks. Wallace's Flying Frog of the Malay Archipelago—also a Tree Frog—and a few other species related to it have developed enormous webs to the digits so that when these are extended they can support the animal in the air and enable it to plane from one tree to another. Some of the toads, such as the Spade-foots of Europe and North America, have adopted burrowing habits and by means of special shovel-shaped tubercles on the hind feet can dig themselves quickly into soft earth.

Eric Hosking

A Fulmar on its nest on an Orkney islet: a bird whose range and numbers have been increasing in Britain for over seventy years and in the North Atlantic generally for about two hundred years

The Fulmar Spreads

by JAMES FISHER

Mr Fisher has written many books on ornithology and natural history and is well known as a broadcaster on these subjects. His monograph entitled The Fulmar *is the fruit of fifteen years' investigation and will be published this winter by Collins in the* New Naturalist *Series, of which he is Resident Editor. The colour-plates accompanying the present article will appear as illustrations to the volume and are reproduced by permission of Adprint and the Editors of the Series*

Of all the birds I have studied, the fulmar has most stimulated my interest in geography; simply because fulmars live in regions of extraordinary geographical interest, and because the remarkable revolution that has taken place in the population of the North Atlantic fulmar in the last two hundred years has been a geographical one. Moreover, the spread of the fulmar in this period in Iceland, the Faeroes, Norway and Britain, is not the only fulmar problem connected with geography. What is the climatic and environmental basis for the interesting distribution of the fulmar's colour-phases? How recently has the northern fulmar population been derived from that of the Antarctic fulmar, and when did the North Pacific and North Atlantic fulmar populations become separated? Are there or are there not breeding colonies of fulmars in the western islands of the Canadian Arctic Archipelago, or on and off the polar coast of Siberia? All these are geographical problems, likely to be solved only by ornithologists who are explorers, or by explorers who are ornithologists.

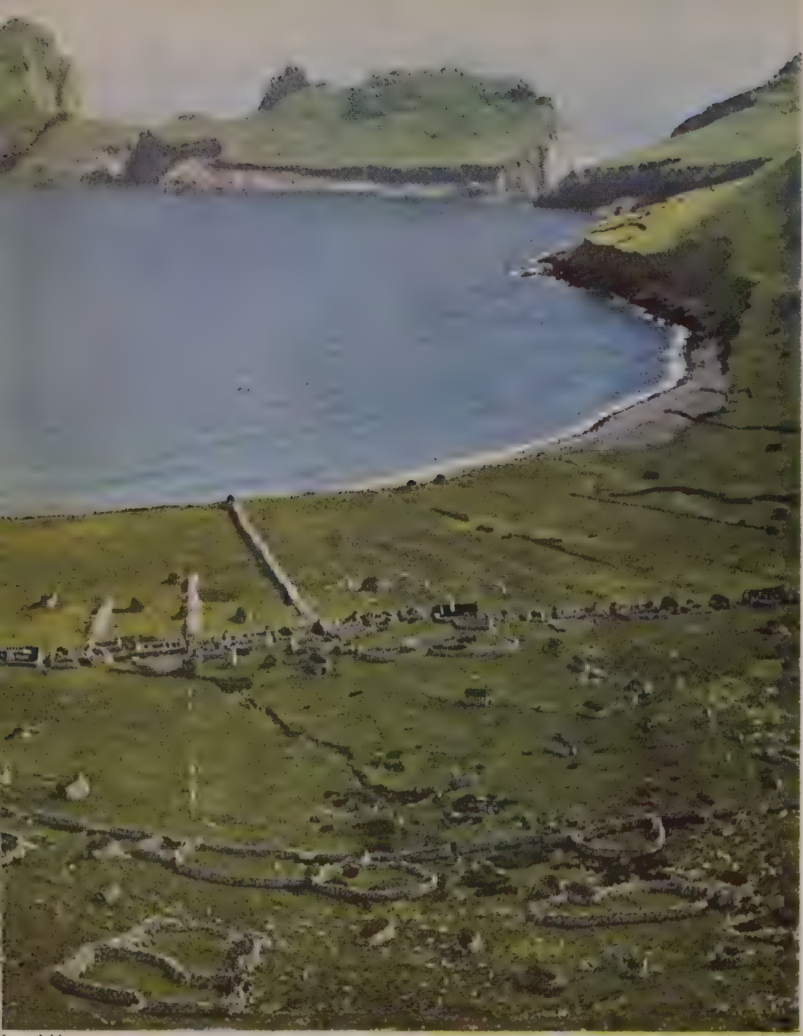
Now that the fulmar has spread so remarkably in Britain, it must be familiar to a large number of coastal holiday-makers. The form that breeds in the British Isles is light-coloured, with dove-grey upper parts and a white head, about the size of a medium gull. It is much more streamlined in flight than a gull, with relatively longer, stiffer wings, not angled. It makes a great deal of its distance over the wide oceans by becoming a sailplane; it can progress quite rapidly against a stiff breeze by taking periodic advantage of the sheltered wave-troughs, and making height meantime with the aid of the vertical component of the wind reflected from the wave-slopes. The stiffer the breeze the more mobile does the fulmar become, and the quicker can it reach any point of the ocean. Its powers of flight are probably stronger than those of any other resident bird of the northern oceans.

Until two hundred years ago the fulmar had a primarily Arctic breeding distribution in the North Atlantic. It probably nested then, as it does now, at a few stations in Baffin Island and on Canadian islands further north, in West Greenland from the region of Disko Island northwards, in north-east Greenland, in Spitsbergen, Franz Josef Land and Novaya Zemlya, on Bear Island, and on the isolated island of Jan Mayen. It also nested in Iceland, though probably only on one place, the island of Grímsey, which is just on the Arctic Circle: and it bred on the island of St Kilda, which may then have been the only place in the Atlantic where it nested south of the Arctic Circle.

About two hundred years ago (actually between 1713 and 1753) the Westmann Islands, the southernmost islands of Iceland, were colonized by fulmars. In the 1750s they were also first noticed nesting on the solitary rock, Eldey, off the south-west coast of Iceland—a rock, incidentally, which houses the second largest gannet colony in the world, and is the place on which the last great auks seen alive were killed on June 4, 1844. In the early 19th century—about 1821—the fulmar began to colonize the mainland coast of Ice-

Cape Searle in Baffin Island, north of Canada, a promontory housing one of the largest fulmar colonies in the world. It lies in the High Arctic, and its fulmars are nearly all dark-coloured

V. C. Wynne-Edwards



Village Bay, St Kilda, the heart of a group of islands inhabited since 1697 (and doubtless for much longer) by a large colony of fulmars occupying probably not less than 20,000 nest-sites annually, and recently about 40,000. The island on the left skyline is the Dún, and the small stone edifices scattered about the village meadows are the famous St Kilda cletts, in which the human inhabitants (who evacuated the island in August 1930) stored all kinds of things including both dried and salted fulmars. This photograph was taken in 1947

bert Atkinson *Kodachrome*

land. By 1849 there were eleven breeding colonies, by 1874 fourteen, by 1899 twenty-eight, by 1924 sixty-seven, and by 1949 no less than a hundred and fifty-five. The spread has been continuous and shows no sign of slackening, though there is some indication that a few of the older colonies, particularly those at Grímsey and the Westmann Islands, are not now as big as they have been. The fulmar is now pretty evenly spread round most of the coast of Iceland, and in places nests on crags up to eleven miles from the sea.

Some time between 1816 and 1839—at about the same time as the fulmars spread to the mainland of Iceland—they first nested in the Faeroes, starting in the southernmost island of Suduroy. By 1900 they had spread to all the other cliffy islands of the Faeroes, and they have continued to spread ever since in population, if they have been unable to spread much in space. Indeed, in the 1930s a crop of no less than 80,000 young birds was stated to be taken annually for food by the inhabitants. The fulmar lays but one egg a year, which it cannot replace, and a crop of 80,000 young was probably taken from a total of at least twice as many nests.

The fulmar colony at St Kilda was first mentioned by Martin Martin in 1697. He was tutor to the family of the laird of St Kilda at that time, and wrote an excellent account of this island and another of the Western Isles generally. It is clear from his writings that the fulmar population of St Kilda in those days was much as it is today; and it is quite probable that the remarkable spread of the fulmar in Britain may have had little to do with the birds nesting on St Kilda. It is far more likely to have been derived from the Faeroes, because the first place upon which fulmars were proved to nest in Britain, apart from St Kilda, was the island of Foula, where about twelve pairs nested in 1878, the birds having probably been present for a few years before this. It seems certain that Foula must have been colonized from Suduroy, 180 miles away, rather than from St Kilda, 274 miles away, particularly as the fulmars in the Faeroes at the time were dynamically multiplying, whereas there is no evidence that those at St Kilda were then increasing.

After 1878 the number of nests occupied on this beautiful island of Foula, with its extraordinary cliff of 1220 feet, increased in geometrical progression, and estimates show that until about 1929 it probably harboured more fulmars' nests than were annually occupied in the whole of the rest of the British Isles, apart from St Kilda. Certainly at present there are over 10,000 fulmars' nests on Foula every year. There are between 30,000 and 40,000 on St Kilda.

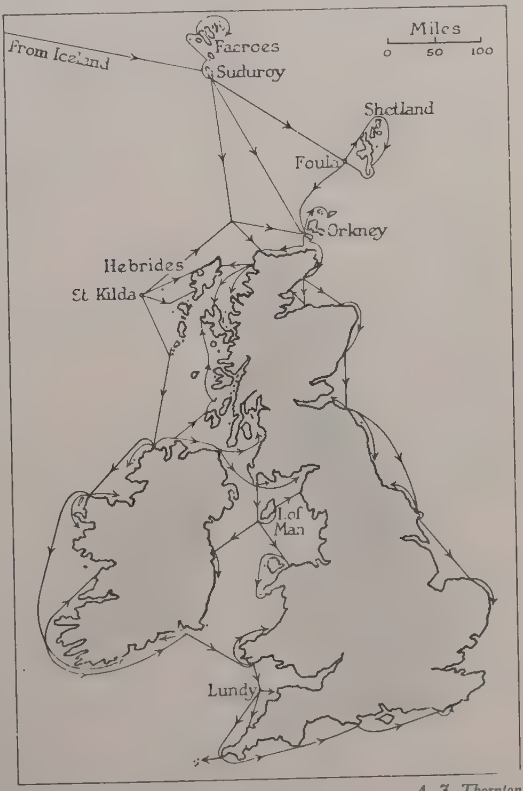
But the spread of the fulmar in Britain has not been by any means confined to the establishment of the great population on Foula. To cut a long story short, it has continued until the present day, the fulmars spreading from the Northern Isles to the Highlands, to the Lowlands, to Ireland, eastern England, and finally to Wales and southern England.

For 1949 I was able to list no less than 365 separate breeding colonies (by separate I mean separated from another colony by more than a mile of unoccupied coast) and 212 cliff stations where fulmars were occupying nest-sites in the breeding season without actually laying eggs on them. However, though the colonies are now very numerous in the south, they are nearly all small; the big colonies are the older ones in the north. Besides Foula there are now at least five colonies in Shetland with over a thousand nests, three in the Outer Hebrides, two in Sutherland and at least one in Orkney.

It is impossible to detail the history of this spread, but it is fair to say that the shape of it indicates that its main base, once the species was established in Shetland, continued to be the Northern Isles and North Highlands rather than St Kilda. From the north separate spreads pushed down the east coast of Britain, to reach Norfolk within the last ten years. Down the west coast the course of the spread has been somewhat complex, but an early penetration seems to have reached Ireland early in the present century *via* the Outer Hebrides. Indeed, from north-west Ireland a minor spread appears to have pushed up the Inner Hebrides from the south, judging from the order in which the chief islands were colonized. Today Ireland is entirely embraced by fulmar colonies, and the birds are even spreading up the Galloway coast into the Solway, and have colonized Cumberland, the Isle of Man, some of the promontories of north Wales, south Wales, Lundy, Cornwall, and recently south Devon. Moreover, fulmars are now showing an interest in the cliffs of north Devon, Dorset and Sussex, possibly even the Isle of Wight and Kent. So far there is no indication of any interest in the cliffs of France, but in the 1920s an outpost was established on the Norwegian coast at about the latitude of Shetland. There is no particular sign that the geographical spread is petering out; rather over thirty new colonies are being prospected every year in the British Isles.

The population increased so fast up to 1914 that if it had been derived entirely from British stock, fulmars would have had to have been immortal, and perpetually fertile and successful with their breeding! This means, of course, that Britain continues to be colonized from outside, presumably from Iceland and the Faeroes. Since 1914 the rate of increase of population has not been so great, but it has continued to be fairly constant and of the order of 7 per cent per annum, which for a slow-breeding creature like the fulmar is phenomenal. And while formal proof is lacking, it seems pretty clear that there is still a considerable stream of colonists coming from outside Britain.

It also seems clear that at least the majority of these colonists which every year prospect new cliffs, and after about four or five years lay eggs on them, are young birds. There is some evidence that fulmars, like most other social birds, tend to retain the nest-site of a previous successful breeding, and that pioneering is largely undertaken by those which have not yet founded a successful nest, that is, by young birds. Young fulmars in the

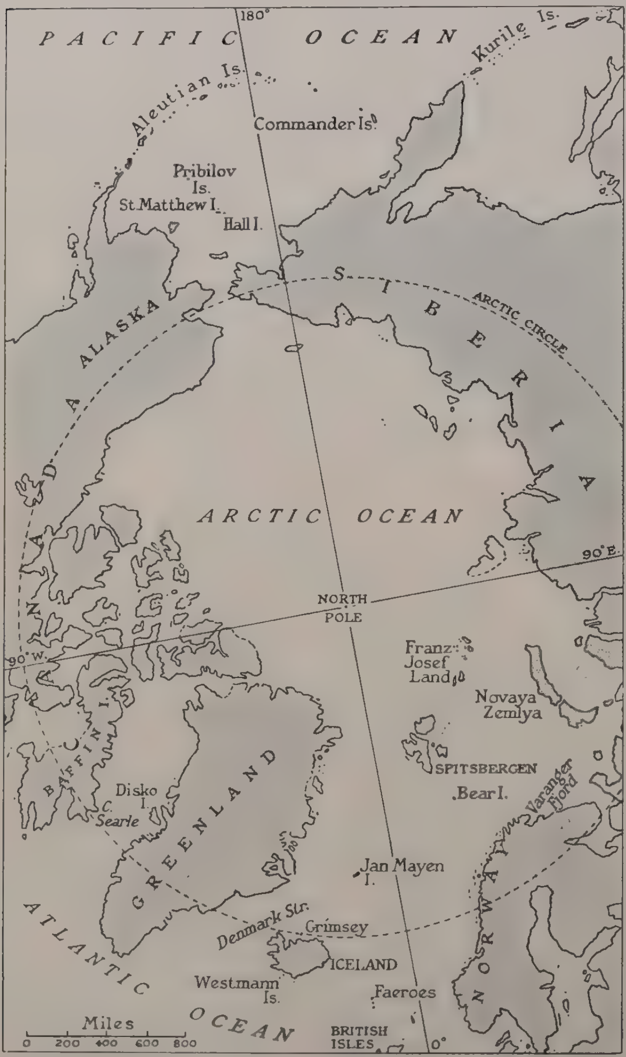


A. J. Thornton

The main directions of the spread of the breeding fulmar in the Faeroes and the British Isles autumn of the year of their hatching are outwardly almost indistinguishable from adults, and evidence as to the age at which they become mature is proving difficult to collect.

But tentatively, from my study of such evidence as there is, I would suggest that in the first years of its life, perhaps four years, the fulmar outwardly resembles an adult, but moults early—in July—and does not develop an incubation-patch. (Most sea-birds, and all petrels, incubate their eggs next the skin, and have a patch or patches bare of feathers on their bellies for this purpose when adult.) Young fulmars in this stage undoubtedly summer on the Newfoundland Banks, where there is abundant food suitable for them, but which is well beyond even a fulmar's operational range from its breeding colony. Possibly there is another nursery for young fulmars, especially the dark-coloured birds from the Arctic, near the Varanger Fjord in northern Norway. In the next years of its life, perhaps as many as four or five years, the fulmar does not reach full sexual development, but develops an incubation-patch, and a consequent urge to repair to land and sit on something, even if it is not an egg. A fulmar may, indeed, be seven years old or more before it lays. I would be surprised if it proved to be less.

After it once lays, I believe a healthy fulmar continues to lay every year, though it has been suggested by V. C. Wynne-Edwards and other workers that at least some of the North Atlantic fulmars may breed intermittently even when adult. I do not find the evidence for this intermittent breeding quite convincing (apart from possible failures of the Arctic fulmars to breed when ice conditions are exceptionally bad) and it is certainly hard to accommodate with the phenomenal spread of the fulmar in the Iceland-Britain area.



A. J. Thornton

There have been various theories about the cause of this spread. It has been suggested that it was due to some change in the numbers of fulmars taken for food by the inhabitants of St Kilda. However, there is no evidence of any kind that the St Kildans changed their fulmar-fowling habits in degree or kind at any time before 1920. The evidence, in fact, is that they maintained their fowling in a most consistent and steady way. In any case, the spread of the fulmar started two hundred years ago in Iceland. If the distribution of the breeding fulmar was linked with temperature, as has been also suggested, one would have expected it to have moved in an opposite direction—northwards—since the history of the last two hundred years has been one, on the whole, of climatic amelioration.

The fulmar has, in the North Atlantic, few natural enemies save man, and there is no evidence that it had any other enemies two hundred years ago. Fundamentally the fulmar is a plankton-feeder, finding on the surface of the sea all kinds of small organisms, particularly crustacea, but also jellyfish. The fulmar eats almost any small animal it can get, and also carrion, particularly if it is fatty. The fulmar seems to have become adapted to living on the kind of food on which the great whales feed, and is fond of those surface-swimming molluscs, the pteropods.

Now there is no evidence in the last two hundred years that the distribution and amounts of plankton in the North Atlantic have changed in any way which could be linked with the spread of the fulmar. I do not believe the spread has anything to do with plankton.

I do believe, however, that it has something to do with the food of the fulmar. What I suggest, in short, is that it has been associated with a revolution in the available food-supply, and that a new food-supply has been provided in two successive stages, by man. The first of these stages is connected with whaling, and the second with trawling.

In the days of the Greenland whaling, when the Right whale was pursued in wooden ships in northern waters, all who took part in it noticed that, as soon as they began to strip a whale of its blubber at the ship's side, up came hundreds and sometimes thousands of fulmars. One of the earliest drawings of whaling, dated 1671, from Spitsbergen waters, actually shows crowds of fulmars fighting round the carcass of a whale. Fulmars just go mad about fat, as anyone can prove for himself by throwing fatty offal overboard. Indeed, in the pursuit of fat, fulmars will allow themselves to be caught (they have no innate fear of man) and, if caught and released, will go back to the same piece of fat. The start of the spread of the fulmar in Iceland coincides almost exactly with the maximum peak of Right whaling in what was called the West Ice, which means the waters off the east coast of Greenland, between Greenland and Jan Mayen, between Jan Mayen and Iceland, and in the Denmark Strait. Such waters are within operational distance of a Grímsey fulmar. Meals were provided all through the breeding season for the fulmars of Iceland and Jan Mayen, for every breeding season was a whaling season.

However, the supplies of Right whales proved inadequate to the demands of commerce, and began seriously to decrease in the 19th century. Nevertheless, Right whaling continued into the second half of that century pretty regularly, sometimes with large catches. When the real collapse of the whaling set in, a new man-provided food-supply was ready for the fulmars: the by-products of trawling. Deep-sea trawlers began to operate about 1850, and the industry expanded tremendously in the eighties and nineties. And all through the North Atlantic waters, round Britain, the Faeroes, Iceland and Bear Island, the trawlermen quickly observed that at every gutting-time thousands of fulmars presented themselves for the free meal, for the fish-guts and offal, and for the unprofitable fish and unremunerative octopuses. I have seen on the Rockall Bank a 'slick' of hundreds of fulmars waiting by a trawler for the next gutting-time, and have seen photographs taken from trawlers by Bear Island and the west of Iceland showing the sea covered with them.

It will be interesting to see what happens to the fulmars when, in the interests of economy, trawlers begin (as some of them have done already) seriously to convert their waste into cattle-food and fertilizer.

There are several other fulmar problems which may prove to be almost, if not quite, as interesting as the problem of its spread. One is the distribution of the colour-forms. About half the population of the fulmars on Bear Island, and nearly all that of the colonies in Franz Josef Land, Spitsbergen, north-east Greenland, and the Canadian Arctic (but not west Greenland or Jan Mayen) is dark-coloured. It would seem that the only parts of the Atlantic fulmar's area where the dark forms can breed in any numbers are those which are technically High Arctic, that is, where the temperature of the water at the surface of the sea in July and August is scarcely above freezing-point. Though light-coloured fulmars are quite often found in the High Arctic, only very exceptional dark fulmars breed outside it. But the situation in the North Pacific is very puzzling, because here the colour-phase distribution appears to be reversed, since fulmars breeding in the southernmost parts of the species' range, the Kurile Islands, are almost exclusively dark, and those in the Commander Islands and Aleutians are mostly dark. Only in the northern parts of the North Pacific, on the Pribilov Islands and on St Matthew and Hall Islands, are the fulmars mostly or wholly light-coloured! The reasons for this are quite unknown but perhaps they will be investigated now that even the remotest Pacific islands are comparatively accessible.

In Britain only 884 fulmars had been marked up to the end of 1949. Of these, two which I ringed as young ones on St Kilda in 1948 were recovered before they were a year old on the Newfoundland Banks, on the other side of the Atlantic. It would be really profitable—and would help enormously towards our understanding of the life-history of this beautiful bird—if a thousand more fulmars could be marked in the next year or two.

Majorca

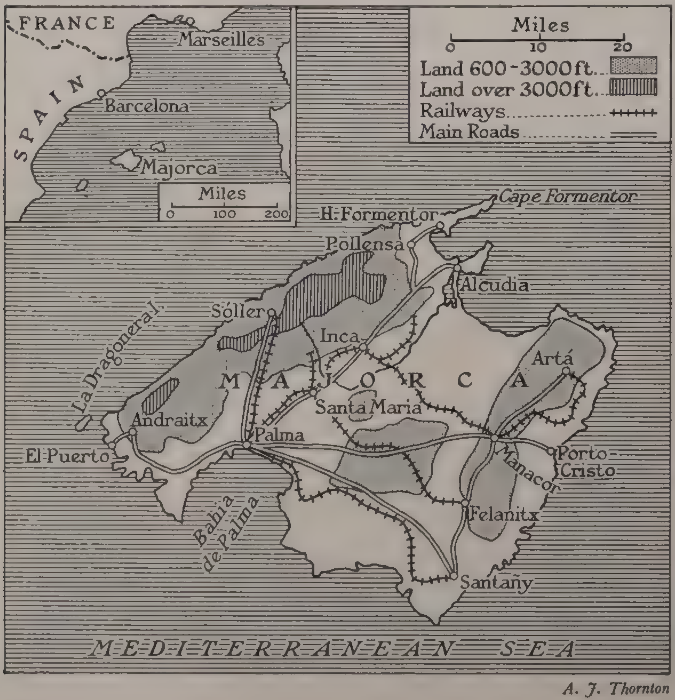
by ALAN ROSS

That Majorca and Mallorca, its names in Italian and Spanish, are pronounced roughly the same is by no means the only little-known fact about the island herein described by Mr Ross. He is something of a specialist in Mediterranean islands, having visited Corsica, Ischia, Elba and Cyprus

Unless you stay at one of the few first-class hotels in Barcelona, you will find it almost impossible, during the summer months anyway, to get a cabin reservation to Palma. It is a shade more difficult, if anything, to fly. And in fact no tickets of any kind are issued till the morning of proposed departure, and only then with grave misgivings about your ever being able to get back to the mainland again. Sometimes these misgivings are realized; but if you put yourself in the hands of the Oriente Hotel in the Rambla del Centro of Barcelona, or begin your negotiations from the Ritz, or the Majestic or the Continentale, you will probably be all right. Your ticket, mysteriously elusive at travel agencies or even at the offices of the steamship company down by the harbour, where there are large apathetic queues, will appear as unobtrusively as your brief-case and umbrella from the porter of a London club.

The *Ciudad de Palma* leaves Barcelona every evening, except Sundays, at 9 p.m. It is a sleek, white vessel, generously overheated and with execrable food, that will deposit you, as punctually as the British Railways, in Palma at precisely 7 a.m. You will have done some 130 miles and you will be nearly half-way to Algiers.

The departure is memorable, for once everybody is on board—workers returning home, French tourists for whom everything is already *formidable*, motor-cars and peasants in the lower decks, business-men with cigars—and the boat is slowly edging out past rust-coloured cargo ships from Panama and Rio de Janeiro, past nests of trim sailing boats off the illuminated landing-stage of the Yacht Club, where ice can be heard clinking as white-coated waiters move in a shapely bar, the whole tremendous skyline of Barcelona is unflexed, as it were a glittering muscle: first the double row of lights along the waterfront, the imposing Monumento á Colón, its statue of Columbus dominating the harbour from a gilded ball some 200 feet up, then the great *diamanté* scaffolding of the town, light thickening in the middle round the Plaza de Cataluña and marking out the Ramblas as they bisect the city north and south, east and west, and stretching right up the hills that enclose Barcelona like an amphitheatre, till eventually it forms a single line from the peak of Montjuich, with its fortress, on the east, to the highest point—half church, half fun-fair—of Tibidabo nearly 2000 feet in the centre, and the Pyrenees in the north-west. High inland is the monastery of Montserrat, and all along the hills villages seem to be sailing with riding-lights on into darkness. In between, the eccentric buildings of Gaudi, the 13th-century cathedral begun by the Majorcan architect Jaime Fabre of Palma, the world of poverty and Civil



A. J. Thornton

The gothic cathedral of Palma, capital of Majorca, dwarfs the city and the harbour below, whose masts reflect its rows of pinnacled buttresses. It is an enormous building, higher than any gothic cathedral in France except Beauvais, and almost twice as broad as York Minster, the widest in England

All photographs by A. Co

Nearly half the inhabitants of Majorca live in Palma, which has one of the most magnificent harbours in the Mediterranean. From the long jetty that stretches almost a quarter of a mile into the bay, or (left) *from the walls of Bellver Castle, there is a splendid panorama of the city, flanked on the left by the hotels of El Terreno and on the right by the industrial suburbs, with the great cathedral as centrepiece, dominating the whole delightful scene*

The circular 14th-century Castillo de Bellver was originally the summer residence of the kings of Majorca, though later it became their prison after the defeat of Jaime III at Lluchmayor (to the north of Inca) in 1349. Subsequently it was used to house political prisoners, among whom was the Spanish statesman and author Jovellanos who wrote some of his best books while incarcerated there from 1802 to 1808

The castle is unique in plan with three round towers and a fourth, detached but reached by a bridge, which served as a dungeon. Ringing it is a double moat. The great courtyard is encircled by a two-storeyed gallery onto which the king's apartments open. The interior has been partly restored but the castle remains an excellent example of a 14th-century fortress-palace

Guards and grandiose avenues inscribed to Generalissimo Franco, are erased in the darkness.

Another impressive gothic building in Palma is the Lonja, the old Exchange, begun in 1426 under the supervision of Guillermo Sagrera, a Majorcan architect who later worked in Naples

Majorca, if one is to take a qualitative inventory of islands in the western Mediterranean, must stand in character somewhere about the middle. It has the chequered history, with its successive Phoenician, Greek, Carthaginian, and Roman occupants early on, that is common to all; it was later, like the islands in the Gulf of Naples for instance, occupied by Arabs and Moors, and then again, like Corsica, it had a short dynasty of kings, founded by Jaime I, *el Conquistador*. Since then, when it was annexed to Aragon and so subsequently in 1492 to Spain, it has become, like Corsica to France and Elba to Italy, an outpost that is a section of a larger entity against which it struggles to retain its own character.

If then, amongst other islands, we take Capri as the most sophisticated and Sardinia as the wildest, how does Majorca fit in? Firstly, though it has a range of mountains in the north, it has a fairly domestic landscape. Corsica, Elba, Procida, Ischia, Capri, all have a sharpness, a basic wildness, as if created, which most of them were, in volcanic convulsion. They are none of them, properly speaking, agricultural islands like Majorca. In them, one is conscious of extremes of feeling, no matter how serene the present moment, that have never quite disappeared. Majorca seems in contrast to have had its crises ironed out—even if, as comparatively recently, this has not been so—and it gives an impression of genial moderation, of acceptance, that is more agreeable than, say, the alternate violence and ennui of Corsica, the commercial corruption of Capri, the roughness of Sardinia, and is some indication of a fairly prosperous community. The landscape, too, connives at this more generally *bourgeois* character, for it is without great differences (the mountains only cover a fifth of the island), and though extremely pretty is mostly put to practical purposes. There is little in Majorca that shocks, visually or otherwise; and the unusually civilized atmosphere of Palma gives an immediate clue to an island which is now a playground where you never really have to rough it.

Palma has in fact one of the loveliest harbours in the Mediterranean. Coming into the Bahia de Palma, early in the morning, past the rocky western coastline, where you can see the prehistoric watch-towers called *talayots*, close in by the islet of La Dragonera, and the smaller bays of Cala Mayor and Santa Ponsa, you enter a wide stretch of water, some twelve miles across, nicely bisected by the main quay of Palma. The north-westerly arm of this bay consists of a built-up frontage of hotels, white, confectionery buildings as dazzling as salt, each with terraces reaching down to rocky sea, and backed by thickly wooded slopes amongst which the Castillo de Bellver, the 14th-century royal residence, a circular fortress with four towers and overhanging turrets, immediately catches the eye. It is a picture-postcard view. A road called El Terreno joins this *hôtelier's* dream to the main part of Palma. And here the view seems to gather momentum; you look along a waterfront of palms and windmills through which cars, trams and carriages detach themselves, and in front of which rows of yachts lie on diamond-hard water, following the arm of the jetty that, supporting a few coasters and a cargo ship or two, swings out into the sea. Then you are brought up short by the huge gothic structure of the cathedral, all pale brown sandstone, with multiple turrets and a campanile, as solid and impressive as a castle, and only separated from the sea by the width of a road and a harbour wall. The windmills and cathedral are of course the most arresting features, so near to the sea as they are, but the whole port is charmingly shaped, with avenues of trees leading away from the quays and narrow, cobbled streets closing in on the cathedral and the solid façades of the Almudaina Palace and the Bishop's Palace—both imposing buildings that give Palma at first sight a somewhat top-heavy look. Then to the south the suburbs die away over the other arm of the bay. Beneath the great square buildings of the port, the clusters of brightly painted yachts produce a rather frivolous effect and, with the cinnamon and red fishing trawlers that lie up off the jetty, they throw the sloping contours and skyline of the old town into sharp relief.

Palma, as a town, is full of interest. It is difficult to think offhand of an island capital of comparable size that has such remarkable buildings. If the background lacks mountains to give it immediacy, like Ajaccio for example, and also Portoferraio, Capri and Porto d'Ischia, each of whose harbours is framed with steep hills, none of these other towns compare in the variety of their architecture or in the imagination of their planning. Palma seems enormously successful in its subtle extensions and adaptations of style; yet despite the charm of its old streets, with tree-lined squares on three or four different levels, the impressiveness of its civic buildings like the Lonja, the former Exchange, the extremely beautiful 13th-century gothic church of San Francisco de Asis, and the scores of private houses, built under Italian architectural influence in the 17th and 18th centuries, with Majorcan open courtyards and large open-work staircases leading out of them—despite all this, Palma manages to be a vivacious modern port, projecting an air of agreeable *insouciance*, with admirable hotels, excellent food and service, remarkably good shops, and enough café society for those who need it.

So it is not surprising that in the last few decades Majorca has become a popular resort and that Palma has adapted itself to the tourist trade. What is so nice is that it has made such a good and unobtrusive job of it.

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A day in Palma. First a bathe off the rocks of the Hotel Victoria, a light breeze from the sea filling the sails of a few boats. Trawlers with painted religious images on their bows move slowly over green, milky sea, The light is so clear it draws everything close, as though seen through binoculars. Palma seems the colour of pollen. After breakfast you can take the train past the lighthouse of Porto-Pi and go down to the pretty but dingy beach of Cala Mayor, a few miles west. The beaches round Palma are poor, you have to go much further west to the port of Andraitx, near where there are two smaller beaches at Camp de Mar and Paguera; or else right across the island to Formentor, Alcudia and Pollensa. Perhaps, if it is not too hot, one might walk up to Bellver Castle and admire the great central courtyard, the Torre del Homenaje with its cells one above the other where the Spanish statesman and author Jovellanos was imprisoned, and take in the harbour lying flashing below with the pines pushing their perfume over in great waves.

Lunch late in town at a palm-shaded restaurant. The Majorcan gin-fizzes are lethal, and may induce you to buy some of the many fine shirt materials, shoes, baskets, linen, or a ship in a bottle. But you will not regret them, nor the exquisitely embroidered handkerchiefs and lace you will find everywhere. Also good quality glass. Some of the shops are nearly up to the *chic* if not chicanery of Capri.

In the cool of evening, with the sky squeezed of heat, there is the old town to visit: narrow, winding streets, the Arabian baths, the cloisters of San Francisco de Asis, and after virtuously doing the lesser churches and museums, you may sit at a café on the Rambla, watching the people move under the plane trees, sip a Cinzano and appear not to be deafened by the hooting of taxis.

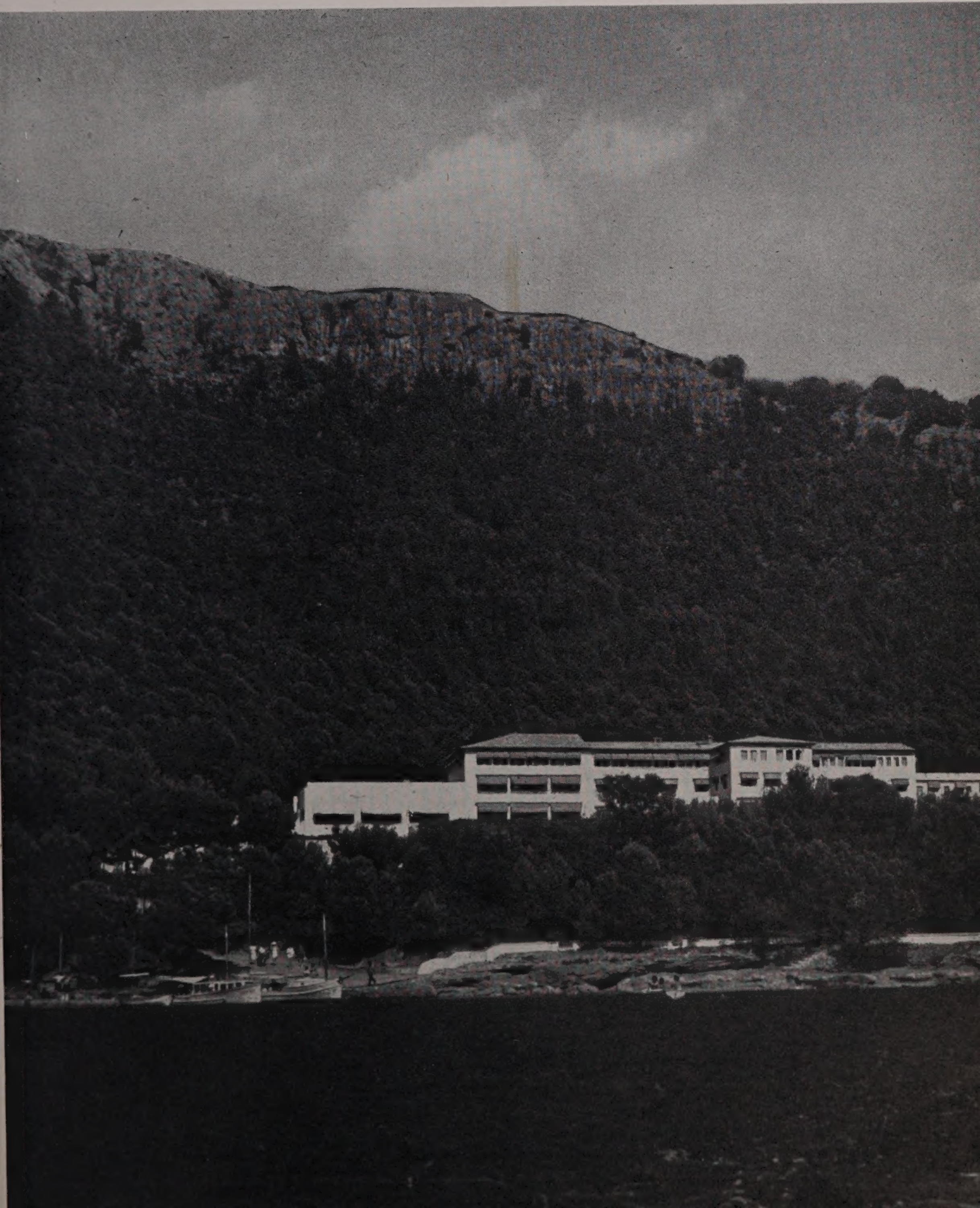
At night the harbour, glittering from headland to foot, is more than a dream; the air is perfumed; one of the windmills is turned

The number of windmills, perhaps more than anything else, distinguishes Majorca from other Mediterranean islands. They are to be seen nearly everywhere, in Palma as well as all over the plains to the south. Many are now dismantled but some still produce flour

Though much of it is heavily wooded, Majorca is essentially an agricultural island. There are few large estates: in most instances the small landowners cultivate their own ground. Main exports are almonds, beans, figs, oranges, lemons and potatoes. The haystacks, usually conical, are smooth and neat

The beach at Formentor. Majorca has half-a-dozen first-class beaches of which the best are probably at Formentor, Alcudia, Sóller and Paguera. Formentor has natural resources comparable to the finest European playgrounds, but has no crowds, being somewhat remote and less noisy. The long, sandy beaches are lined with pines and sheltered by mountains on each side

In an island rich in good hotels, all comparatively cheap by mainland standards, the one at Formentor is the most luxurious and also the most isolated. Other excellent hotels, notably three in Palma, have terraces down to the sea but only the Formentor, set among rose gardens and pines, has its own beach



into a night club, and from El Terreno, where there is an open-air restaurant called Tito's, tango music drifts over the warmed sea and a girl clicks castanets as she sways like a pink sail in a square of light.

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Palma, of course, is not Majorca; though like most island capitals it is a microcosm of it. From Palma every part of the island is within easy reach. There is no village that you cannot visit and be back in Palma by nightfall. Transport of every kind, especially coach, is excellent and if you make your headquarters in Palma you can take a leisurely excursion to a different place each day.

If you go due west from Palma, out through the coastal road that runs behind the hotels in El Terreno, and along past Porto-Pi and Ca's Catalá, you come eventually to the most westerly point of the island, beyond Andraitx, almost opposite the islet of Dragonera which you pass on your way in by boat. A sharp, zig-zagging road, it takes you along the edge of beaches like Paguera and Camp de Mar, small fishing villages where you can live for practically nothing, then up steep hills and down to the pretty harbour of Andraitx, some thirty kilometres from Palma. From Andraitx a mountain ridge stretches along the north-western coast to the extreme north of the island, Cape Formentor. Along this ridge the road goes down from mountain ledges, where villages have been built and terraces laid out for various fruits, tomatoes especially, to Sóller. All this part of Majorca is mountain, with further inland, layers of thick wood and gnarled olive, and nearer to Palma almond trees, whose fruit is one of Majorca's chief exports. Sóller itself is in a valley, amongst orange groves and almost completely shut in by mountains, and five miles down has a beach and small fishing village called Puerto de Sóller.

This segment of the island, the triangle composed by Palma, Andraitx and Sóller, and enclosing Valldemosa, is Majorca's showpiece. Valldemosa is over 1000 feet up and surrounded by finely laid out estates, culminating in the contiguous estates of Miramar, over which the Archduke Ludwig Salvador of Austria let his inventive imagination play at the end of the last century. The Carthusian monastery, built in 1321 as a royal palace, has had the monks' cells converted into luxurious private villas. In one of these George Sand and Chopin stayed in 1838, and some of Chopin's most famous nocturnes and preludes were written there. Adjoining the monastery is a remarkable 18th-century chapel, with frescoes on the ceilings and in the interior of the dome.

The main road across the island runs from Palma just south of and parallel to the mountains and ends at Formentor and Alcudia. Both these resorts, on either side of the Bahia de Pollensa, are, as far as bathing is concerned, far better off than Palma. Formentor has one of the best hotels in the Mediterranean, built amongst pine-woods and near a wide sandy beach; Pollensa is, as Señor Escalas, the author of a charmingly laudatory guide-book, puts it, "the favourite spot of every artist who visits Majorca"; and Alcudia, a prettily situated fishing village, has impressive Roman walls and the remains of an amphitheatre. Incidentally, José Pla, the poetic historian of the Catalonian Costa Brava, has now turned his attention to Majorca and has recently written a detailed guide to the island, comparable in style and devotion to his much-praised (by Salvador Dali, amongst others) earlier work.

Various places on and off this straight trans-island road are of some interest. At Santa Maria, for instance, some quarter of the way across from Palma, there are some curious caves called Avenc de Son Pou, and a little way from the village the estate of Son Torrella, an excellent example of Majorcan building, the house constructed round a courtyard, with rooms leading off a connecting quadrangular corridor. From the tower of Son Torrella you get a beautiful view of typical agricultural country, roughed in with hills to the north, and having its market town some two-thirds of the way over at Inca. Ten miles or so to the north of Inca, now up in the mountains again, there is a monastery at Lluch.

The southern part of Majorca is rather more ordinary, but it has very pretty cultivated plains, broken up by windmills, which are used mostly for making flour, and are a particular characteristic of the local landscape. For anyone who has not undergone the ritual of the Blue Grotto at Capri or who still cares for caves, Majorca has two considerable specimens, the Cuevas de Artá and the Cuevas del Drach. The latter are near the small fishing village of Porto-Cristo on the east coast and contain what is reputedly the largest underground lake (580 feet x 130 feet) in the world. Stunned by stalactites, the awed visitor is sent away happy, on Mondays and Wednesdays only, alas, by concerts performed on the lake by a string quartet.